

Rock Products

DEVOTED TO
Concrete and Manufactured
Building Materials

Volume IX.

CHICAGO, ILL, APRIL 22, 1910.

Number 10.

CAROLINA PORTLAND CEMENT COMPANY

We are the largest distributors of Portland Cement, Lime Plaster, Fire-brick and General Building Material in the Southern States, and have stocks of Standard Brands at all of the Atlantic and Gulf Seaports, and at our interior mills and warehouses, for prompt and economical distribution to all Southern territory. Write for our delivered prices anywhere. Also Southern agents for the "Deltavine's" waterproofing material, "Universal," "Acme" and "Electrod" Brands Ready Roofing. Get our prices.

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Manufacturers of the Celebrated



DEVOYE a special department to the manufacture of Brick particularly adapted both physically and chemically to

Lime Kiln and Cement Kiln Construction

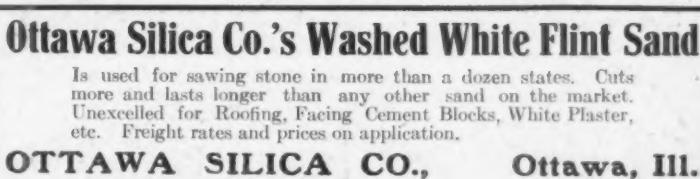
Large stock carried. Prompt shipments made. Write for quotations on Standard and Special shapes, to

UNION MINING CO. Mount Savage, Md.

CAPACITY, 60,000 PER DAY.
ESTABLISHED 1841.

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PORTLAND CEMENT
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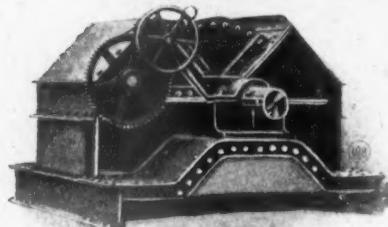
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 Ornamental Concrete Stone—Exterior Plastering
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 Freight Rates and Prices on Application.

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1,250,000 Barrels Annually

HIGHEST QUALITY
 "THE BEST THAT CAN BE MADE"

"Chicago AA" Portland Cement is best adapted for use in making concrete because of its absolute uniformity, fineness, prompt hardening and attractive color. "Chicago AA" is second to none, and every barrel is fully guaranteed to meet the requirements of the Standard Specifications.

CHICAGO PORTLAND CEMENT CO.

108 La Salle St.

Booklets on Request.

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If you've got a job of concrete or masonry to waterproof, waterproof it once and for all and have done with it. There are a dozen methods of "half-way" waterproofing, but what's the use? Why fiddle away time and fool away money on something that can't make good?

You wouldn't buy a lame horse for a roadster; why buy lame waterproofing for anything? Why not follow the lead of engineers, architects, contractors, builders and decorators who are specifying and using "Te-Pe-Co"? It is the up-to-date waterproofing compound. It is the one successful material for waterproofing every conceivable class of masonry—and the fact that it can be used with no appreciable discoloration is a strong point.

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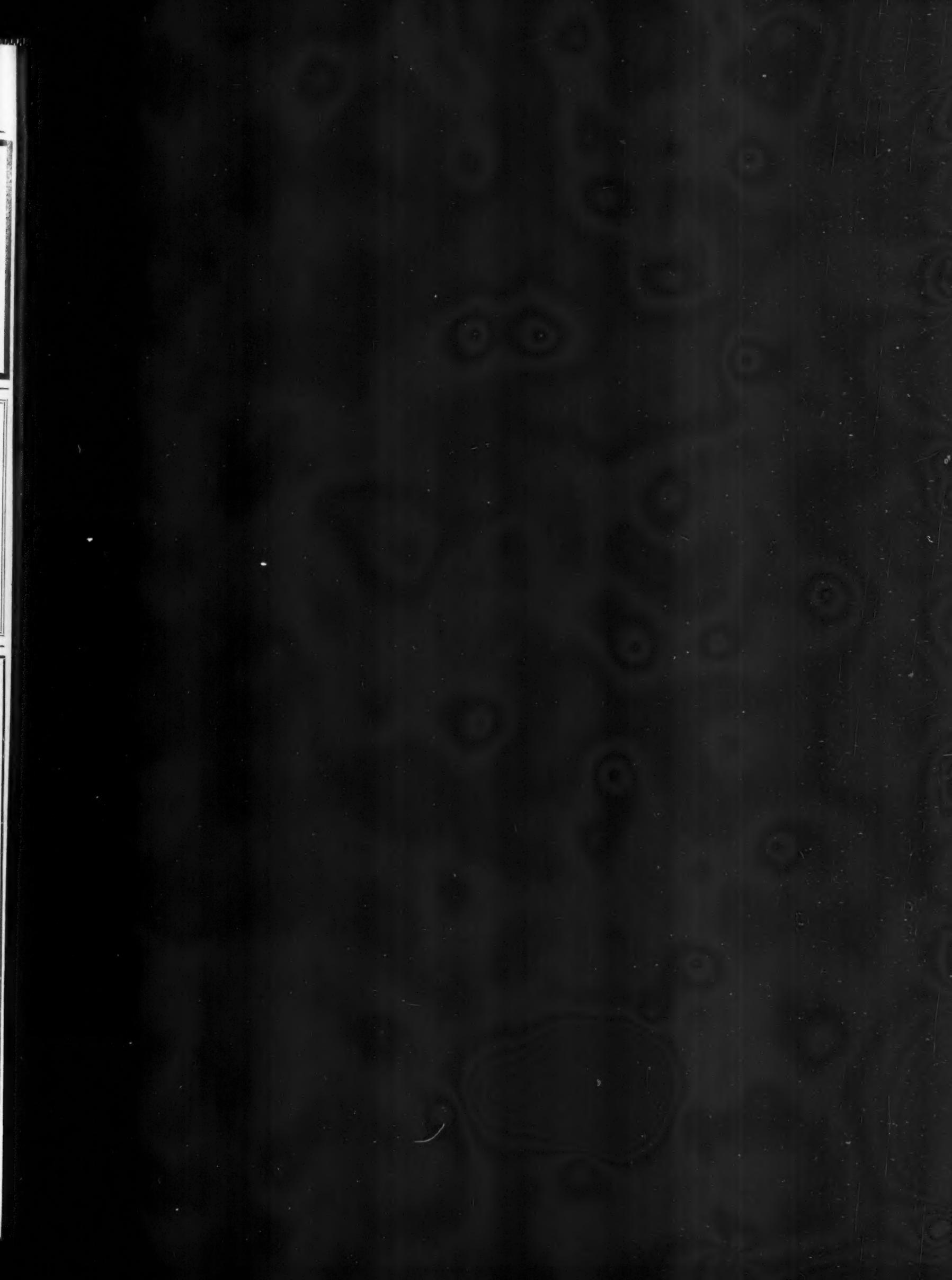
"TE-PE-CO"
 EVERLASTING
 WATERPROOFING

and where it has been used with complete satisfaction; want you to understand why the interior decorators of the new Blackstone Hotel, Chicago, used it as a damp-proofer and primer on the halls and 540 rooms in this magnificent palace hotel.

Can you afford to be without all the "Te-Pe-Co" facts that we can give you?

The National Water-Proof Co.

614 Harvester Building
 Chicago, Ill.



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Rock Products

DEVOTED TO
Concrete and Manufactured
Building Materials

Vol. IX.

CHICAGO, ILL., APRIL 22, 1910.

NO. 10.

Concrete Street Paving a Complete Success

Mason City, Iowa, After Testing the Proposition] by Laying Concrete Streets Under Great Difficulties, Places New Contracts — City Engineer Wilson's Specifications.

Mason City, Ia., has experimented with the concrete street and they have been found to be everything that was claimed for them and have given eminent satisfaction. Last year the mayor and city council of this thriving western city decided that concrete paving would stand the test as well as other kinds of paving and placed contracts for several blocks of this in permanent alleys down town where the traffic is heaviest. This paving was placed late in the fall during the wet weather and while it was still cold enough to be freezing at times, yet this paving put down under these disadvantages came out this spring without any trouble whatever as far as City Engineer F. P. Wilson can find.

This paving was put down with the utmost care, using a 5-inch base of concrete containing a mixture of 1 part cement, 2 parts sand and 5 parts crushed rock with a 2-inch surface of richer concrete in a proportion of 1 part cement to 2 parts sand. These same specifications are being used this year in the paving being placed by the city. The whole cost of this paving as compared with other kinds makes it especially adaptable for the smaller cities and towns that cannot afford the more expensive kinds of paving. It is not only more economical to lay, but in its maintenance is where its chief economy lies. No other pavement requires so little repairing or taking care of as the concrete pavement and even when it is worn out, as any pavement is likely to do, it can be repaired with much less cost and trouble.

It is especially fitting that Mason City being the home of one of the largest Portland cement companies in the West should be the pioneer in this section in the matter of laying concrete streets. The location of this company near Mason City has meant a great deal to the city, bringing to it many thousands of dollars every month paid out for labor.

While, as has been said before, great care was exercised in the laying of these concrete streets, there is no reason to believe that the same cannot be done in any other city at approximately the same cost.

The specifications as drawn up by the city engineer and printed below are what will govern the laying of the concrete streets in Mason City, Ia., in the future. The first contract was for six blocks of alleys, which despite the severity of the winter came out without a single crack or break and encouraged the city authorities to let contracts for 1½ miles of concrete paving at \$1.25 per square yard to be laid this summer. At this price concrete paving becomes much cheaper than any other kind of street construction comparing with it in any way for efficiency and cleanliness. Its price should do away with dirt roads and streets in all towns and cities, as the laying of such paving enhances the value of the property much more than the cost of the paving.

General Sales Manager H. B. Hasbrouck of the Northwestern States Portland Cement Company is

particularly enthusiastic over the results, since his brand of cement was used.

The photographs accompanying this article show the paving in one of the down town streets and also the method of placing the same.

DETAIL SPECIFICATIONS FOR PORTLAND CEMENT FOR CONCRETE PAVEMENT.

On Street, Mason City; Iowa,
From To

Preparation of Roadbed.

1. All streets, prior to laying any pavement thereon, shall be graded that the pavements will be at the established grade when completed. After excavating to sub-grade, unless the engineer deems the natural ground a proper foundation, excavation shall be continued until solid ground is reached and then re-filled to sub-grade with sand, gravel or broken stone.

2. The contractor shall be required to remove at his own expense all obstructions, such as trees, old blocks, debris, etc.

Excavation.

3. All excavated material, gutter stones, planks, macadam, crossing stones, old curbs, surplus earth,

etc., shall be the property of the city and be deposited by the contractor in such place and manner as shall be directed by the engineer, the distance not to exceed three thousand (3,000) feet. No plowing will be allowed within three (3) inches of the bottom of the foundation.

Rolling.

4. When the street shall have been graded and shaped to its proper form, it shall be thoroughly rolled with a ten-ton roller to a thoroughly compact surface. If the ground is wet, sand or gravel is to be put on before rolling.

5. Any depression discovered after this rolling, shall be filled to sub-grade, re-rolled, and this repeated until a road-bed perfect as to grade and form shall have been made.

Tamping.

6. When the use of the roller is impracticable, the foundation must be thoroughly puddled and rammed until compacted to the satisfaction of the engineer.

Concrete Foundation.

7. Upon the roadway thus formed, will be laid of Portland cement concrete five (5) inches thick, to be made as follows: One (1) part by measure of Portland cement; two (2) parts by measure of clean sharp sand, and five (5) parts by measure of broken stone.

8. The sand and cement shall be thoroughly mixed dry, on a tight floor, and then made into mortar at the proper consistency and thoroughly mixed over with hoes or shovels, or a batch mixer approved by

(Continued on page 41.)



METHODS EMPLOYED IN HANDLING MATERIALS TO THE JOB AT MASON CITY, IA.

Power & Mining Machinery Co.

MILWAUKEE, WIS. U. S. A.

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Half the weight;
Half the height,
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TO WHICH MIGHT ALSO BE ADDED:

*"Half the efficiency,
Half the life;
Half the success,
Double the strife."*

All the above at the same price of a real crusher, too, such as the

"McCULLY CRUSHER"



McCULLY CRUSHERS ARE NOT SOLD BY RHYME BUT BY REASON

By reason of their unequaled capacity and wearing qualities on rock and ore of any degree of hardness, and WITHOUT MELTING ANY BABBITT.

By reason of not requiring pumps for circulating the oil.

By reason of not requiring any cooling system for cooling the oil.

By reason of their unequaled efficiency under any and all conditions of service.

By reason of their unequaled economy due to minimum power, oil and repairs required.

By reason of many other "reasons",—too numerous to mention here, but which are contained in our new Catalog No. 4-R which is just off the press.

DO YOU WANT IT? THEN SEND FOR IT. IT'S FREE!

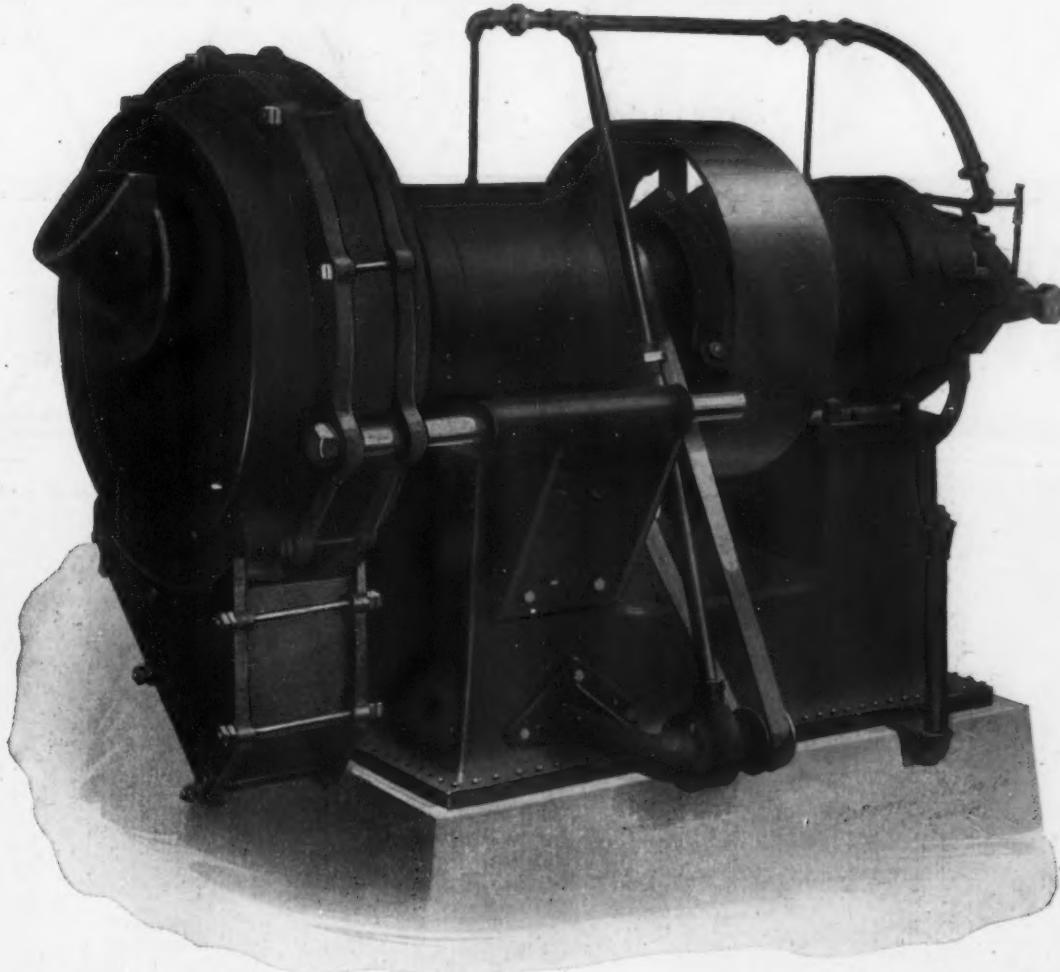
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Does the Work at One Operation
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This crusher cannot choke or clog, even on wet material. Its capacity is extraordinary; twice the capacity of any other. All wear on the crushing discs may be taken up readily. It is a high speed crusher, having a low speed bearing sustaining the load. The crushing action or stroke may be regulated while the machine is running. Bearings protected; oiled automatically.

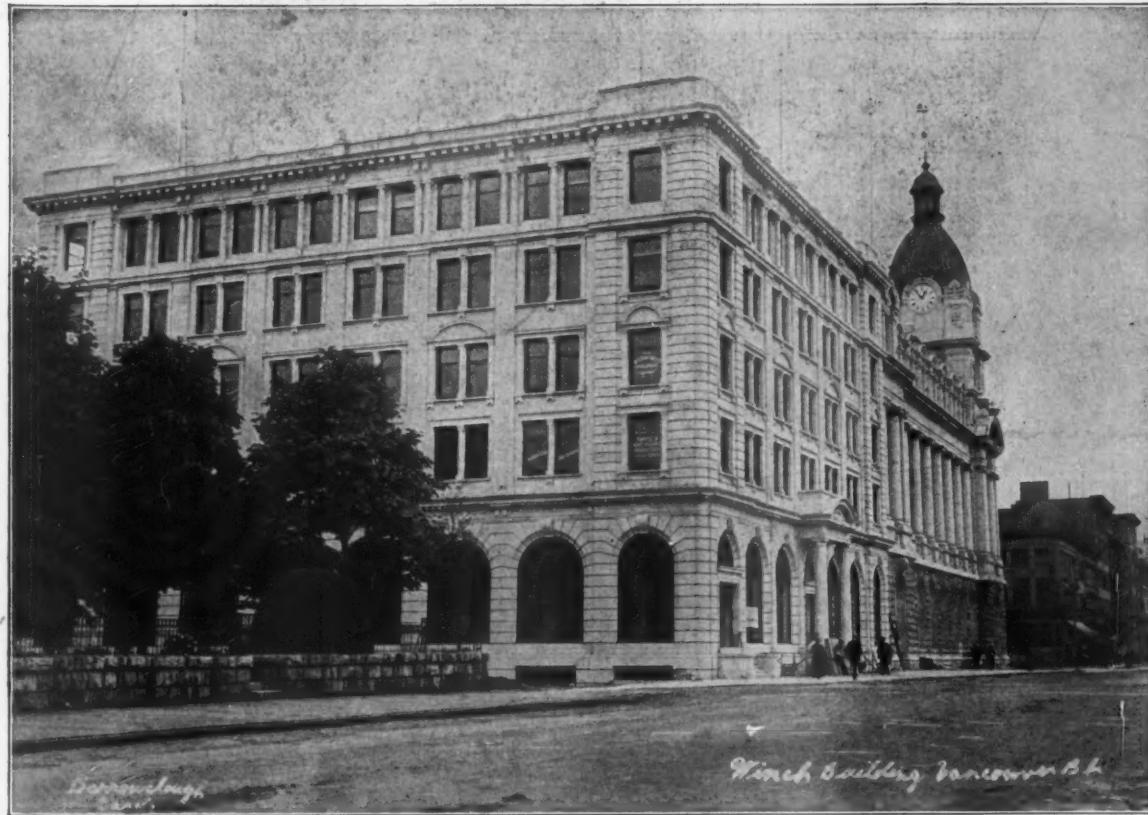
SYMONS BROTHERS

 READ HOW THIS CRUSHER WORKS IN
DESCRIPTIVE ARTICLE ON ANOTHER PAGE

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Triangle Mesh Concrete Reinforcement



Winch Building, Vancouver, B.C.

Triangle Mesh reinforcement used.

Made by
American Steel & Wire Co.
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WRITE FOR ILLUSTRATED PAMPHLET
United States Steel Products Export Co., New York, N.Y., Export Representatives.

Hydrated Lime

Bulletin No. 34

When small per cents of hydrated lime are added to concrete it is an advantage in a number of ways:

(1) The concrete works easier under the trowel.

It finishes easier.

(2) It prevents drying out as quickly as it otherwise does.

(3) It improves the color of the finished work.

(4) It makes the concrete more impervious to water.

(5) It improves the strength.

(1) Hydrated Lime is very fine. Its fineness exceeds that of the finest Cement by 9-10 per cent, that is, 94 per cent will pass 200 mesh, while the finest Cement placed on the market has a fineness through 200 mesh of 85 per cent. Hydrated Lime is 19-20 per cent finer than standard ground Cement, which have 75-76 per cent through 200 mesh sieve.

When small per cents, say 10 per cent, is added and well mixed the finely divided, flaky nature of the Hydrate reaches every part of the mass. On account of its lightness it follows the tendency of the moisture to work to the surface. In so doing the granular particles becomes coated with thin film of Hydrate and the mass offers less resistance to the workman's tools. Mixing is therefore easier. When the finish coat is put on the same is true and by the time this is well worked in place there is sufficient Hydrate present at surface to make floating and troweling easier. The finisher can do this important work much faster and easier.

(2) There is a tendency of concrete to dry out. This is true while it is being mixed and while it is in early stage of hardening. Drying out varies, but even in cold weather when a gentle breeze is stirring it goes on to some extent. In hot weather or windy weather it is greatest. To prevent this, work is protected or more water is used. It is also sprinkled after it begins to harden. Hydrated Lime, when added, prevents drying out. It has a tendency to hold the moisture in the mass.

(3) Hydrated Lime makes the color lighter. When work is well done and well finished the color should be a light gray. Through ingenious workmanship some very pleasing finishes are produced. Take any case, work is lightened in color several shades by addition of 10 per cent. It approaches white, the color desired in all finish work. Hydrated Lime overcomes any other color in the sand. In some localities sand is dark, sometimes a reddish color.

(4) The base of most water proof compounds is Hydrated Lime. The solubility of Hydrated Lime is 50-65 per cent greater than Cement. This heavily saturated solution in concrete crystallizes in the voids of concrete. It fills the spaces there as much as possible and makes the mass more dense. Cement has a tendency to do the same, but not sufficient in general work, to make the mass impervious to water.

(5) The all important result in concrete work is strength. When strength is increased by an improvement it is a success. Hydrated Lime when added in amounts of 5 to 10 per cent does improve strength.

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It requires about four months to build a plant, why not take this matter up with us now and get ready for next season's business.

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Against the
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THIS coating becomes a part of the material itself and will give concrete, stucco, brick or plaster any shade desired as well as protect it against moisture.

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Ceresit is now being used for the Harper Memorial Library (Chicago University) which is more than an ordinary waterproofing job. There is a reason why Ceresit is so widely known all over the world. Insist upon Ceresit being specified for your next building.

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APRIL 22, 1910.

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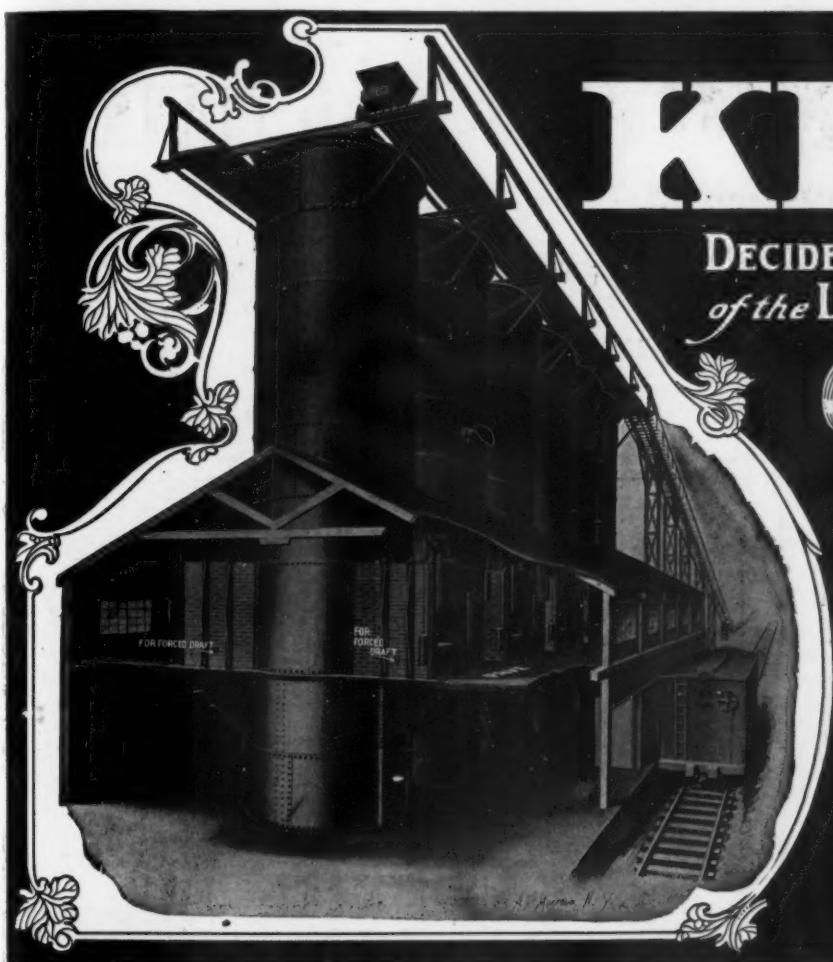
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Crushed Stone and White Lime

Sales Office at each Plant

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Lime Kilns at Portland, Ind.—Crushers at all 3 Quarries

Write the Plant nearest your Work for Prices

CRUSHED STONE, all sizes, SCREENINGS CLEAN

Connections with 6 Railroads

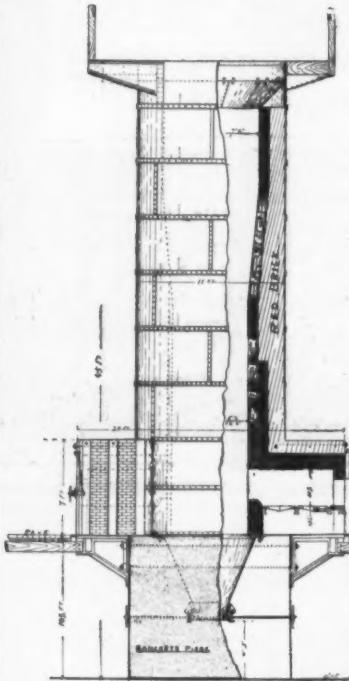
Modern Machinery and Screens

Banner Hydrate Lime

Manufactured at Gibsonburg, Ohio, by the
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 Offices: Pittsburg, Pa.

Daily capacity 150 tons

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The Broomell Steel Shell Lime Kiln

This Kiln is identical in size and capacity, and all castings, cooling cone, rock storage, etc., are just the same as in my reinforced concrete kiln.

No better lime kiln than this was ever made.

Price is low.

A. P. Broomell, Manufacturer YORK, PENN.

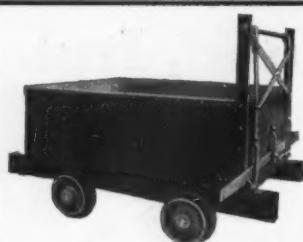
MITCHELL LIME

Is Chemically Pure and Practically Free from Waste

The Strongest White Lime on the Market. Used and recommended by Sand-Lime Brick Manufacturers, Chemists, Soap and Glue Works, Plasterers and Masons.

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Mitchell Lime Company
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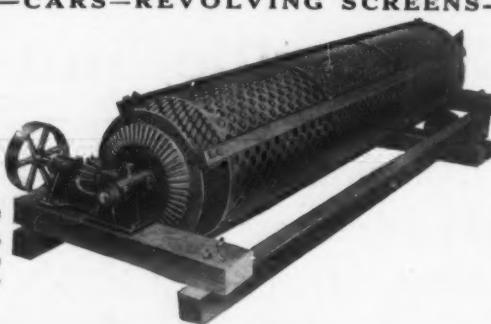


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DO YOU NEED —CARS—REVOLVING SCREENS—



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We manufacture a complete line of the above equipment. Also design and build special cars, buckets, hoppers. Send us your specifications—we will quote you promptly and believe we can show you we have what you want.

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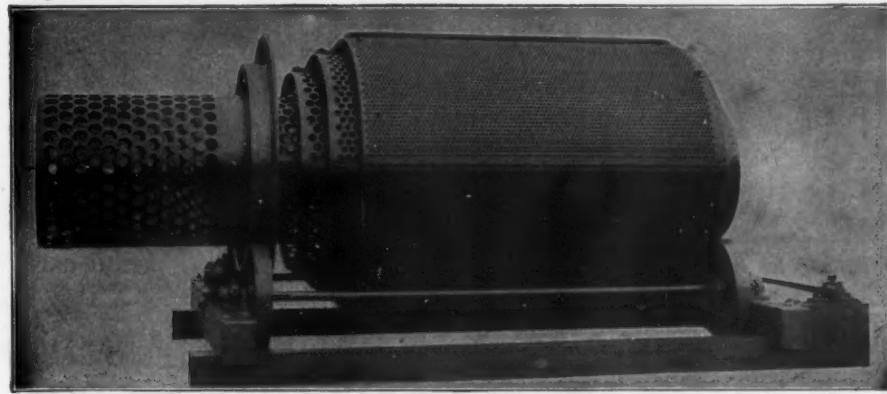
1679 Elston Ave., CHICAGO.

We have 5 new 1½ yard cars similar to the above in stock ready for immediate shipment. We will quote you price on these that should interest you. We also carry a stock of track, turntables, switches.

If interested send for Catalogue R-31, which illustrates kind and quality of equipment we make.

Tell 'em you saw it in ROCK PRODUCTS

JOHN O'LAUGHLIN'S SCREEN



The advantages of these screens are described in detail in a circular which WE WILL MAIL TO ANY ADDRESS. Mr. John O'Laughlin, the inventor, has designed many notable improvements in rock-drilling, quarrying, crushing and screening machinery, and uses these improved screens in his own crushing plants, which others have declared "to be the most perfect in existence in every detail." The O'Laughlin Screen is an important factor in the most modern and perfect stone-crushing plant.

made solely by Johnston & Chapman, is the

ONLY SCREEN

on the market for wide-awake quarry-men and miners, who want to separate crushed granite, limestone or other minerals, gravel, sand, coal or coke. It will soon earn its cost in saving of repairs, and maintenance, and reduced power, and will do more and cleaner work than any other cylindrical screen of like area. No one can afford to keep old traps in use when the O'Laughlin installed

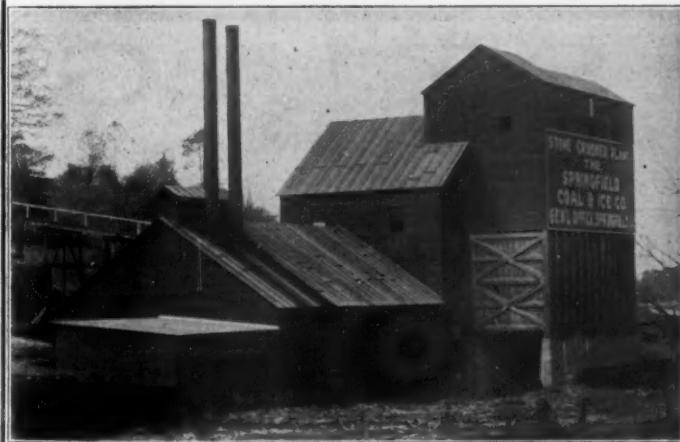
NOW

will from the moment it starts give a better and larger product, and a big interest on your investment in continuous saving in cost of repairs, renewals, and power. For particulars, address:

JOHNSTON & CHAPMAN CO.

Corner Francisco and Carroll Ave., Chicago, Ill.

Perforators of Sheet Metals, Flat, Cylindrical, and Conical Perforated Screen Plates for Quarries, Mines, Reduction Works, Mills and all Industrial Purposes.



Osborne Crushing Plant of the Springfield Coal & Ice Co.

We are prepared to ship crushed limestone from $\frac{7}{8}$ to $3\frac{1}{2}$ inches on short notice.

On account of the high percentage (96 to 98%) carbonate of calcium, this material is especially suited for fluxing.

Excellent Shipping Facilities and Prompt Service.

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SPRINGFIELD, O.

RING-ROLL PULVERIZER



A spout delivers the required rock material to the concave revolving ring "A" where it is strongly held by centrifugal force until crushed off by the Rolls.

- Ground rock crushed off of both sides of Ring.
- Thick layer of centrifugally held unground rock.
- Rigid revolving Ring drives all three rolls on 1" layer of centrifugally held material.
- Spring pressed Rolls frictionally driven by centrifugally held material.

FOR HARD AND MODERATELY HARD ROCK

OUTPUT

2 to 20 tons per hour.

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1 $\frac{1}{2}$ inch and finer.

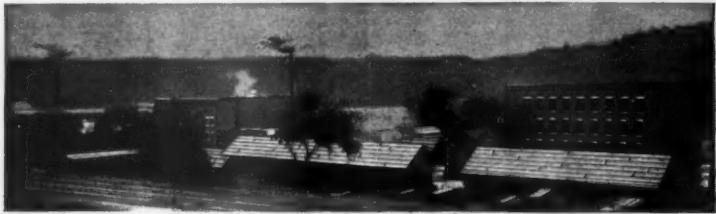
PRODUCT

8 to 100 mesh and finer.

Send for Catalogue

STURTEVANT MILL Co., Boston, Mass.

Amatite TRADE B MARK ROOFING



CITY LUMBER AND CO. WATERBURY, CONN.
Covered with 15,000 square feet of Amatite.

They Figured Carefully and Chose Amatite

When a man is under the necessity of using a lot of roofing, he is pretty sure to study the subject with great care. That is why Amatite is so often used on the big ready roofing contracts. A man who has only a few hundred feet of roof will often be careless in his choice of roofing, but when it comes to thousands of square feet, (as above) Amatite is sure to be used.

The following is a typical instance:

Waterbury, Conn.,
Nov. 19th, 1909.

Barrett Manufacturing Company.

Dear Sirs.—We wish to inform you that the "Amatite" Roofing which we have used on our office, store house, lumber shed and barn has given most satisfactory service. The area that these roofs covered is about 15,000 square feet. The roofing is unusually attractive in appearance, and in our

judgment it is the most durable and satisfactory made. The fact that it requires no painting appeals to us very strongly, and this feature makes it by far the cheapest ready roofing on the market.

Yours truly,
CITY LUMBER & COAL COMPANY.
[Signed] F. B. Boardman, Treasurer.

The economy of Amatite is not only in its durability and its price (lower than any other mineral surfaced ready roofing on the market), but also in the fact that it *requires no painting*.

You may be sure it would cost something to paint their big roofs if they used a roofing that needed painting. All that is saved with Amatite.

A sample of Amatite will be sent you for inspection, free, if you will send name to the nearest Barrett office at once.

BARRETT MANUFACTURING COMPANY

New York	Chicago	Boston	Philadelphia
St. Louis	Cleveland	Cincinnati	Minneapolis
Pittsburg	New Orleans	Kansas City	London, England

FOR BLASTING

Use the World's Only Successful Substitute for Dynamite

DYNALITE

TRADE MARK

REGISTERED

PATENTED AND PATENTS PEND

For extra heavy and solid blasting use our 1910 Special Quick Grade.

For Crushed Stone and Silica Sand Quarries, Contractors, Stump Blasting, Ore and Slag Shooting, Clay and Shale, Oil and Gas Wells, Etc.



Dynalite Blast in Large Limestone Quarry.

Safer and Better
Than Dynamite.
Does Not Explode
by Overheating.
No Illness.

Manufactured
by

The American Dynalite Co.

SOLE OWNERS

LONG DISTANCE PHONES
Magazines: Ottawa, Ill.; Akron, O.; Findlay, O., and others

Mills: AMHERST, OHIO

Tell 'em you saw it in ROCK PRODUCTS

"INDEPENDENT DYNAMITE—
Always consistent in price and quality."

INDEPENDENT POWDER
COMPANY OF MISSOURI

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FACTORY · · JOPLIN · MO.
GENERAL SALES OFFICE · ·
PIERCE BLDG. SUITE 655-67 · ST. LOUIS · MO.

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- PORTLAND
- BALT. LAKE CITY
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- SPokane
- SPRINGFIELD
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SUPPLIES for large
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1802
1910

EXPLOSIVES

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Always Full Strength
Always the Same

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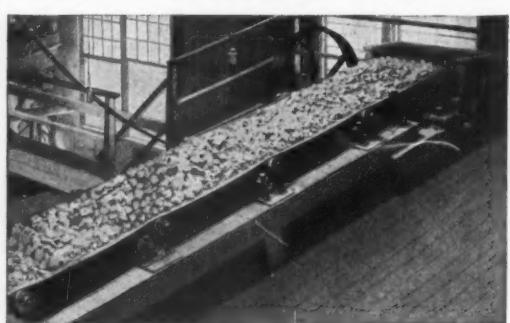
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Manufacturers of
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Fire Clay, Wall Coping, Etc.
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HIGH GRADE **FIRE BRICK**

For Cement Works, Lime Kilns, Cupolas, Steel and Iron
Works of every description.

LOUISVILLE FIRE BRICK WORKS,
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Highland Park, Ky., P.O.

DIRECT HEAT **DRYERS**

FOR

**BANK SAND
GLASS SAND
ROCK, CLAY
COAL, ETC.**

All Mineral, Animal and Vegetable Matter.

We have equipped the largest plants in existence and our dryers are operating in all parts of the world. Write for list of installations and catalogue S. C.

American Process Company
68 William Street, NEW YORK CITY

RUGGLES-COLES **DRYERS** RUGGLES-COLES ENGINEERING CO. NEW YORK CHICAGO

The Cummer Continuous Gypsum Calcining Process

See Other Advertisement, Page 65
THE F. D. CUMMER & SON CO., Cleveland, Ohio

Seven plants in successful operation producing about 1,500 tons per day.

THE WINANT COOPERAGE CO.

Staves, Hoops and Heading for Lime,
Cement and Plaster Barrels

MILLS:
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To Dispose
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**Old
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PLACE AN AD
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The most secure fastening in concrete as well as in stone.
Send for Samples.
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The Largest Manufacturers in the U. S.
**BRICK AND MORTAR
COLORING**
OF ALL SHADES
CORRESPONDENCE SOLICITED. SAMPLES AND ESTIMATES
CHEERFULLY FURNISHED ON APPLICATION.



Lime Kilns and Plant of Blair Limestone Co.,
Canoe Creek, Pa.

Designed by
Henry S. Spackman Engineering
Company
42 N. 16th Street Philadelphia, Pa.

ROCK PRODUCTS

ESTABLISHED IN LOUISVILLE, KY., 1902.

DEVOTED TO CONCRETE AND MANUFACTURED BUILDING MATERIALS.

Volume IX.

CHICAGO, APRIL 22, 1910.

Number 10.

Publication day, 22nd of each month.

THE FRANCIS PUBLISHING COMPANY

EDGAR H. DEFEBAUGH, PRES.

Seventh Floor Ellsworth Bldg., 355 Dearborn St., Chicago, Ill., U. S. A.
Telephone Harrison 8086, 8087 and 8088.

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BENJ. F. LIPPOLD.

HENRY C. WHITTAKER.

BERNARD L. McNULTY.

Communications on subjects of interest to any branch of the stone industry are solicited and will be paid for if available.
Every reader is invited to make the office of Rock Products his headquarters while in Chicago. Editorial and advertising copy should reach this office at least five days preceding publication date.

TERMS OF ANNUAL SUBSCRIPTION.

In the United States and Possessions and Mexico..... \$1.00
In the Dominion of Canada and all Countries in the Postal Union..... 1.50
Subscriptions are payable in advance, and in default of written orders to the contrary, are continued at our option.

Advertising rates furnished on application.

Entered as second-class matter July 2, 1907, at the Postoffice at Chicago, Illinois, under Act of March 3, 1879.

The intelligent standardization of the product of the rock crusher is just about as important as the standardization of cement in the highest types of concrete.

Lime burners are adopting gas producers for firing their kilns. The handwriting is upon the wall, for with larger necessary investments and consequent greater economy, it means stronger establishments in the lime business of the future.

Since very little is heard from the Canal Zone at Panama, the presumption is that considerable excavation is going on, together with considerable concrete laying at the big locks. More work and less talk, you know.

No man who makes a business of handling builders' supplies can read twelve consecutive numbers of ROCK PRODUCTS without making at least \$100 clear profit thereby. Try it and see for yourself, as very many others have done.

The rapid and steady growth of the hydrating branch of the lime industry indicates the basic merits of that proposition. The volume of business just about doubles with each succeeding year. Those who are in the business right say little but keep right at it, and the records are silent about anyone ever going broke on the process.

Sand reclaiming as a business proposition is new, but no branch of the supply business is more important today. Cost determines the profit, because the selling price is very often a matter of competition. Then the relative efficiency of the equipment employed often makes the difference between a profitable business and just working for wages.

Plastered exteriors, the most beautiful development of architectural art, is steadily growing in popularity. Half timbered effects and newer independent types of treatment are lending to even modest dwellings that touch of refinement which denotes a higher civilization, because it indicates a decision to spend money tastefully as well as usefully at one and the same time.

If there is any doubt about the usefulness of class publications to the trades they foster and protect in the postoffice department or elsewhere, one glance at the correspondence that comes to the editor of a live-wire publication any day would dispel such a thought. The information distributed and put into successful practice in a single year creates enough revenue to build and maintain a battleship, to say nothing of that not very clearly defined deficit.

Plaster board and plaster partition blocks and other plaster products now form an indispensable line of specialties that the supply men handle with facility and with profit.

If all the cement companies projected for Pacific coast locations should be financed at once and all come into bearing, there would soon be projected a concrete causeway to the Philippines in order to use a little of the cement. There would probably still be enough left for all reasonable requirements.

From every one of building material markets, both great and small, come reports of very bright prospects for business. Railroad corporations are resuming in general way the whole line of improvements that have been held back to a pronounced extent for two years past. Building projects and improvements as well as replacements that can no longer be delayed are contributing to the solid causes for good business.

Local coöperation of retailers of supplies in many of the larger markets would be a mighty good thing. All are willing to admit this truism. Then why not go to it? If it is only a little matter of personal diffidence or commercial modesty, reticence or whatever it is, just drop a line confidentially to ROCK PRODUCTS telling about it, and we will find some way, either directly or indirectly, to help the situation. Don't hesitate if the spirit moves you, for that is what your trade paper is for.

Practical cement users as a rule do not appreciate the advantages offered to their particular benefit by the National Cement Users' Association. Often do they complain of the lack of uniformity in practice, and standard rules and specifications. This is identically what the work of the association is providing. With your help the standards needed could be more quickly supplied, and they could more efficiently be put into practice. Since you are herein shown the way to get what you want, go after it by joining the association first, and then doing your part as a member. ROCK PRODUCTS will be glad to put your application through for you in proper form.

The crop of road contracts is said to be plentiful, but the engineers are skimping the specifications so as to get more road for the money. That makes a thin film of metal, so a great many of them cannot be called "good roads" by any means. There is no way to cut out the rock base without injuring the quality of the road. Opinions will always differ probably as to the top dressing or finish and its disposal, but there is no doubt about the experience with reference to the base of the road—it must be a compact mass of crushed rock of the three-inch size or larger and deep enough, according to the character of the soil, to make a firm porous bed that will drain water promptly from the surface layers and pass it into the soil below or to side ditches through the soil. No road having less than a foot of such foundation can properly be designated a "good road."

Fire losses of property and human life sacrificed in fires have become a silly, out-of-date and expensive folly and crime without excuse. Time was but lately when the first had to be considered a necessary risk, while the latter was looked upon as an unavoidable and always to be expected catastrophe. It takes a long time, apparently, to awake public interest in even so important a matter as self-preservation; for everyone voluntarily offers his life to the hazard who builds a house of combustible materials, and every list of building permits shows five wooden houses to one of some other type. It is a bad habit handed down to this generation from a period in which conditions were not like they are today. Perhaps it will yet be necessary to use force before the ignorant can be awakened. Meanwhile are we all doing our duty in spreading the modern humanitarian gospel of concrete construction? Each and every one of our readers can do something, and if every man was doing his full duty in this direction it would have a mighty effect indeed.

EDITORIAL CHAT

A. L. Hagelboeck, vice-president of the Davenport Locomotive Works, Davenport, Ia., who has been in charge of commercial affairs, is now head of the sales department. A. E. Rosenthal, who had this position, has resigned.

S. M. Hall, secretary, Broken Sword Stone Company, Bucyrus, Ohio, recently drew up a little certificate entitled "The Blue and the Gray." If you did not get one you ought to, because it is one of Hall's best and he has always got a few on tap, as many of our readers will recall.

John Nagy, Toledo, Ohio, the veteran concrete block maker, is on deck this spring, as usual, and as enterprising as a busy man can be. He says: "Here I am, making better blocks every season, and selling more of them, because the people who buy my blocks know the Nagy quality."

Charley Reed won his spurs as an expert chauffeur the other day when driving his car on Sixty-sixth Street, Chicago, he steered clear of a reckless rooster running in front of his automobile. He missed the rooster by a shave, but bagged a lot of orders for Meacham & Wright's cement on his trip.

The Pennsylvania Cement Company announces the change of location of their offices in New York City. Hereafter President Beach and his sales department will be found on the fifteenth floor of the Columbia Building, 29 Broadway, N. Y., and the new telephone numbers will be Rector 5540-5541.

P. E. Ritchie, formerly of Quebec, went to Vancouver, B. C., last December. Since then he has organized the Ritchie Contractors' Supply Company, of that place, and says: "I have been so busy that I found it impossible to attend the Chicago Cement Show, which I regret very much. This is a rich and growing country, where everybody works."

James E. Lill is known on the North Side of Chicago as a hustler and optimist in building material circles. He is a familiar figure in his buggy, driving a spirited and blooded horse, encouraging with his cheerful talk and advice contractors and builders to greater achievement in the territory which is the garden spot for residences in Chicago.

S. A. Williams, Jr., the well-known equipment man, has become the sales manager of H. B. Sackett's Screen and Chute Company, 4212 State Street, Chicago. Mr. Williams is one of the old steady ones in his line and will represent the Sackett line of ears, skips, buckets, tanks, revolving screens and other equipment with which many of our readers are as well acquainted as with the man.

M. E. Van Frank is noted in building circles of the Chicago South Side for his amiable and quiet manners, and is among the most popular of men. On occasions when it becomes necessary, however, he gets his "Dutch" up, singing softly, "We Dutcher must together sticken," and fellows who try to impose upon him know "all bets are off," as happened one day last week at the yards of the Standard Material Company.

The Cement Products Exhibition Company, whose permanent office is 115 Adams Street, Chicago, announces that they have secured Madison Square Garden in New York City for the purpose of holding a cement show there December 14 to 20 which will be conducted upon even a grander scale than any exhibition of the kind which has yet been held. New York City, the great metropolis of the country, has never seen a cement show which is worthy of such a name, and the very efficient record that has been made by the Cement Products Exhibition Company in the two shows which they have given at Chicago is a sufficient guarantee that all of the experience, skill and accumulated information on the subject of holding cement shows will be concentrated on the great New York event.

This publication from time to time will carry the announcements in detail of the coming event in cement and construction circles. It is well now to look forward to this affair so as to make plans far enough in advance to be sure of attending.

APPOINTED CONSULTING ENGINEER.

Prof. Ira H. Woolson, of Columbia University, New York, has been appointed consulting engineer to the National Board of Fire Underwriters. He will continue the work hitherto carried on by the committee on building materials and construction systems and will undertake his new duties on July 1. Prof. Woolson is unquestionably the most practical engineer who has devoted his talent and study to the matter of testing relative merits of building materials.

As a man of great capacity and of sterling character, he enjoys the confidence of the public as well as the esteem of the producers of building materials and the designers of construction systems.

In a recent contention with regard to the new building code of New York City, Prof. Woolson's statements and observations were received and considered as well nigh final, which illustrates that he is susceptible of the responsibility which his eminence and his profession has secured to him and the fairness and equity with which he undertakes every test will give to the National Board of Fire Underwriters a standing which would be impossible for them to secure without Prof. Woolson's personality at the head of their engineering staff.

The tests of fireproof building materials and fireproof construction made by Prof. Woolson for the city of New York have given him an intimate knowledge of the requirements of fireproof building construction and have made him an authority on the general subject.

In 1903 he was the delegate of the city to the International Fire Prevention Congress in London.

direct from Uncle Sam by merely paying back to him on easy, long-time payments without interest the actual cost of constructing the irrigation system.

Chas. H. Claiborne, sales manager of the Union Mining Company, Baltimore, was seen in Chicago recently. He was on the wing and full of business, saying "Firebrick orders are plentiful and every one of our customers seem to be making preparations for big business in 1910."

Harry Franklin Porter, whose eminence in structural concrete engineering has been solidly earned in many important works in this country and Canada, has recently made his home in Chicago. He is connected with the Board of Supervising Engineers of the Chicago Traction Lines.

H. C. Schields, formerly with the Lehigh Car and Axle Works at Catasauqua, Pa., is now general manager of the quarries and crusher plants owned by Thomas Edison, near Belvidere, N. J. Mr. Schields has also been made manager of the Pohalcong Railway, a subsidiary company of the Edison Portland Cement Company.

E. L. Benedict, president of the Oklahoma & Texas Cement Brick Company, Oklahoma City, Okla., was a Chicago visitor this month. He says that the company has a number of orders on hand for the installation of machinery in brick plants. The manufacturers of cement products are realizing the advantages of using power presses in order to secure capacity to compete with other bricks.

H. B. Hasbrouck, the genial sales manager of the Northwestern States Portland Cement Company, Mason City, Ia., was a Chicago visitor this month. To a representative of Rock Products Mr. Hasbrouck spoke enthusiastically about the cement situation. He said that the demand in Iowa was large and that the big Northwestern mill was running full tilt.

Good reports come from the Atlanta, Ga., office of the Power and Mining Machinery Company which is in charge of Lloyd St. J. Smith. The territory which is covered by the southern office comprises Georgia, Florida, Alabama, Mississippi, North and South Carolina, Virginia, southern part of West Virginia, Tennessee and Kentucky. Mr. Smith is one of the best known crusher men in the country.

Arthur S. Lewis, Superintendent of Lincoln Park System, Chicago, is receiving many complimentary expressions about the lighting effect made by the massive and elegant lamp posts along the whole length of Lincoln Park Boulevard. We heard a veteran globe-trotter tell him the other night that even the Champs Elysee in Paris is not so effective after dark. That is going some for Lincoln Park, but it's what one can always expect with the right man.

J. B. Graham, who for the past three years, has been chief chemist of the Marblehead Lime Company, Chicago, has severed his connection and is now western manager of the Brown Instrument Company, of Philadelphia. The latter company manufacture a complete line of high-grade indicating, recording and scientific instruments, such as pyrometers, hydrometers, revolution recorders, electric furnaces, etc., used in cement, lime and plaster mills for recording stack and kiln temperatures. Mr. Graham's office is in the Commercial National Bank Building, Chicago. Many installations using recording instruments, especially pyrometers, are being made by progressive manufacturers and the field is a broad one for a capable man like Mr. Graham.

Acknowledging receipt of the official programme of the Third Annual Cement Show, Mr. Leo J. Keena, American Consul, Chihuahua, Mexico, writes as follows:

"If you can cause to be sent to me the catalogs of the manufacturers, who exhibited at this show, I shall be very glad to give them a prominent place in the catalog department maintained by me. While not much cement is used here, yet it is growing in favor and I believe a large field will be developed in time."

It is well known that Mexico buyers do so largely from catalog and one on file at this city from each of the exhibitors would materially assist in keeping the names of American manufacturers before them. May we, therefore, suggest that you mail a copy of your catalog to Mr. Keena, irrespective of the fact that Mexico may be outside of the territory in which you operate.



IRA H. WOOLSON, NEW YORK CITY.

He established the Columbia Fire Testing Station several years ago, and the station is now well known.

Besides his work for the city of New York, Prof. Woolson has conducted important investigations for the American Society for Testing Materials, of which he is an active member. He has represented the American Society of Mechanical Engineers in the N. F. P. A.

Prof. Woolson is a native of New York state, and he was graduated from the School of Mines at Columbia College, with the class of 1883. After serving on the New Jersey State Geological Survey for one year, he returned to his alma mater, where he has taught for nearly twenty-five years.

In the office of the Settlement Agent of the United States Reclamation Service, Room 802, Federal Building, Chicago, there are now installed a number of beautiful transparencies illustrating actual scenes on the various irrigation projects undertaken by this service throughout the West. These interesting pictures were on exhibition in Seattle during the Alaska-Yukon-Pacific exposition, and later at the Coliseum Land Show in Chicago, but are now made a permanent feature of this office. As it is impossible, from lack of space, to put all of these on display at one time, they will be changed occasionally and new ones shown to the callers. Visitors are welcome to call at the office from day to day to view this exhibit, and those who desire may obtain free booklets and information regarding the opportunities for securing an irrigated farm

ROCK PRODUCTS

Smith, Emery & Co., of San Francisco, Cal., announce that they have equipped a complete laboratory for the inspecting, testing and analyzing of building materials, as well as the raw materials from which such materials are derived. They are a progressive concern and deserve the success which they have earned on the Pacific coast.

J. L. Schaillair, president and general manager of the Great Lakes Portland Cement Company, says his company will construct a plant to cost about \$830,000 some time in June at Sault Ste. Marie, Mich.

The Bronson Portland Cement Company, of Bronson, Mich., has been formed with a capital stock of \$110,000.

The Alpha Portland Cement Company of Easton, Pa., is building a new cement plant at Alseus, N. Y., which will contain many interesting features and will be modern in every respect. The entire plant will be electrically driven. Power will be furnished by producer gas engine generators.

TO SUMMER COTTAGE BUILDERS.

The season when summer cottage building by the lakeside, on the seashore or in the mountains is at hand. We have one question to propound to those summer cottagers who love their families well enough to give a thought to their safety: "Will you not consider the matter of building your summer home of non-burning materials?"

This may mean the saving of the lives of those most dear to you when all other means of succor is far away. Do not by any means patronize flimsily-built wooden hotels, of impossible egress in times of danger like fire panics. Surely there have been enough of horrible examples, and you probably do not care to be numbered amongst either the mourners or the dead.

SERIES OF LECTURES.

An innovation will be introduced into the work of the Building Industries' Association, of St. Louis, when the first of a series of lectures will be given which will relate to the various departments of building operations. These lectures will be given by experts and the various topics will be discussed from a scientific standpoint with a view to informing those engaged in building of the progress being made in this department of industry. The course was arranged by the secretary, F. G. Boyd, who came from Baltimore, his native city, last fall and succeeded F. W. Choisel as secretary of the association December 1.

REINFORCED MACADAM PAVEMENT.

A new system of road construction designed to resist the destructive pneumatic effect of automobile tires, has been under test for some time at Gennevilliers, a suburb of Paris. This construction, devised by M. Guiet, and described in a recent issue of "Le Génie Civil," consists in part of a foundation of concrete about 2 inches thick. Upon this foundation and along its length are laid No. 6 steel wires and steel strips $1\frac{1}{4}$ inches \times No. 14 gage, set edgewise. The steel strips are spaced 2 feet apart and the No. 6 wires lie at a distance of 8 inches from each side of these strips. At longitudinal intervals of 8 inches each vertically-placed steel strip is looped around with a No. 9 steel wire, the ends of which are hooked around the No. 6 wires at each side. Over this reinforcement is spread a thick layer of cement mortar, in which broken stone is carefully imbedded. On its surface the road resembles an irregular stone paving with cement joints. The cost ranges from \$1.25 to \$1.40 per square yard of surface, which, it is thought, is not more than the cost and maintenance of ordinary macadam for a term equal to the life of the reinforced road.

DON'TS FOR THE CLIMBERS.

Don't smile at another man's failure. You never know when your own is coming.

Don't shirk your duty. Conscience is a splendid detective and is sure to find you out.

Don't put off the things that can be done at once. Work that is put off is usually half done.

Don't tell a man what you can do; talking takes time. The quickest way is to do it.

Don't be unwilling to share your money with your wife. She is a full partner in the business and not the company.

Don't say you can't until you have tried. You can even have more ability than you imagined.

Don't forget that drones need compliments to get on, men of talent like them, but men of genius are too busy working to give thought to praise or censure.—John Trainer, in the Chicago Tribune.

CONCRETE BUILDINGS AT STATE FAIRS.

Some time ago a movement was started to secure the erection on state fair grounds of permanent buildings, devoted to the cement industries, where cement products of all kinds can be shown together, and under the most favorable conditions. The suggestion has been acted upon in Iowa and a building will be erected on the fair grounds which will give the cement industries 30,000 feet of floor space. The matter is being considered by the Minnesota Society and favorable action is expected to be taken soon. In several other states the matter is being discussed and it seems likely that the movement will become general.

SALES MANAGERS' MAXIMS ON SUCCESS.

"A personal appearance is better than a letter of recommendation."

"Refrain from excuses; don't say I did not think."

"Don't wait to be told what to do; go and do it."

"Don't covet the other fellow's job or salary."

"Live within your income and don't go in debt."

"Don't be afraid to blow your own horn."

"Give every man a square deal and demand one for yourself."

These maxims were given in talks at the banquet of the National Sales Managers' Association, which was held in the Florentine room of the Congress



F. G. BOYD, ST. LOUIS, MO.

Hotel, Chicago, Wednesday night, March 30, by members who spoke after the annual address of C. A. S. Howlett, of Chicago, president of the association, had been made.

The association embraces a membership from firms that are quoted "A" and "AA" in commercial ratings and is for the purpose of gathering ideas for stimulation of trade and management thereof. The total membership in the fifty-nine cities of the country is 5,000.

At the business session held during the afternoon officers were elected as follows: President, C. A. S. Howlett, Schenectady, N. Y.; first vice-president, H. N. Rose, New York; second vice-president, A. C. Secrest, Cincinnati; third vice-president, W. O. Washburn, St. Paul; secretary, J. C. Van Doorn, Minneapolis; treasurer, B. P. Neff, Duluth; manager, H. N. Case, Chicago. Two hundred members were at the banquet.

UNIVERSITY FELLOWSHIP COMPETITION.

H. S. McAllister, permanent secretary of the Architectural League of America, sends out the following announcement regarding the university scholarships of the league:

Harvard University offers to members of the associate societies and to the individual members of the Architectural League of America three scholarships in architecture for special students. The scholarships will be awarded to those who stand highest in the

competition in architectural design to be held in May.

The competition will be conducted in the various cities by the league through the organizations affiliated with it on a program prepared by the Architectural Department of the Harvard University, and will be judged by the Professor of Architecture in that university and a Boston architect selected by the league.

These scholarships entitle their holders to free tuition in Harvard University for one year, the cost of such tuition otherwise being \$150 per year.

If the number of candidates and the quality of the work done in the competition should warrant such action, the Department of Architecture of Harvard University will recommend to the authorities the award of similar scholarships to the two competitors standing next highest on the list to the successful ones.

It is hoped that a large number of men will avail themselves of the splendid opportunity presented by the above.

Candidates should notify Emil Lorch, Chairman of the Committee on University Fellowships, Architectural League of America, Ann Arbor, Mich., of their intentions to take part in the competitions.

The program will be given out at 9 a. m., May 14th, at a place in each city designated by the officers of the local organization or by the Chairman of the above Committee on University Fellowship in the case of individual members of the League.

Eight consecutive hours will be allowed for making a preliminary sketch, a tracing of which should be retained by the competitor, the original being handed to those supervising the preliminary competition.

Supervisors of examinations will endorse the original sketches and send them at once to the Chairman of the Department of Architecture of Harvard University.

The essential features of this sketch are to be adhered to in preparing the final drawings.

The competitors will have until Monday, May 23d, to complete the drawings called for by the program. The drawings are to be sent in a mailing tube, and must bear the postmark or express stamp of that date. They should be addressed to the Chairman of the Department of Architecture, Harvard University, Cambridge, Mass. The drawings of the unsuccessful competitors will be returned.

The name of the designer should not appear on any of the drawings. The sketch and the final drawings should bear some device, a copy of which, with the author's name and address, should be sealed in an envelope and enclosed with the drawings. The competitor must not have any assistance whatever in preparing his drawings, and that they are by him alone should be stated on the identification sheet.

Committee on University Fellowship—Emil Lorch, Chairman, Ann Arbor, Mich.; John T. Comes and A. G. Headman.

GERMANY TURNS TO CONCRETE.

Dr. Herman Passow, Engineers G. Beil and H. Weidner, Dr. Otto Schott and Claudius Peters, a commission appointed by the German government to look into American concrete construction methods, arrived recently by the Hamburg-American liner President Lincoln, from Hamburg.

Dr. Schott said that the laws of Germany so far prohibited the cutting down of trees that even the farm fences were built of stone. He recognized that America led the world in artificial stone work and that is why the commission was sent here. It wants to find out, among other things, how cheaply concrete fences may be built; also all forms of farm and other architecture.

The Wisconsin Lime & Cement Co., Chamber of Commerce building, Chicago, have become the agents for Illinois of the Blane Stainless Cement Co., of Allentown, Pa. The highest encomiums have been passed upon this cement. Gems of art have been made from it. Call at the office of the Wisconsin Lime & Cement Co. and let them explain every particular. This company also has full charge for this territory of the product of the National Glass Brick Company, of Connellsburg, Pa. They manufacture a glass faced concrete brick, any color desired. It is the brick for permanent beauty; sanitary and absolutely waterproof. For bath rooms, nothing more beautiful, more durable, or more sanitary could possibly be procured. The thinnest place in the body of glass is $\frac{1}{4}$ -inch—bricks made 2 inches or 4 inches depth to suit. Any concrete mix desired, may be used.

Hahn & McAuliffe, of Miami, Fla., are in the market for a rock crusher. The material they have to crush is soft stone.

CEMENT

THE CEMENT SITUATION.

What we have been predicting all along seems about to come to pass. At least it is closer to being a reality than ever before. When the panic of 1906 struck the cement industry the capacity of the plants of the United States was approximately 50,000,000. Since then the various plants which have been built and the additions which have been made to old ones have increased the capacity of the plants to somewhere near 65,000,000 barrels. For the past several years very few of the cement plants have run full time and some of the plants have been shut down a great part of the time. Despite all these efforts to keep down the supply, the demand fell off so greatly that prices took the inevitable tumble. This is all past history now and familiar to the majority of the cement manufacturers, but it only leads up to the present.

During the latter part of the last year and the early part of this year orders for cement have been given out so rapidly that the depleted stocks on hand at the various cement plants have practically been wiped out until now the majority of the great cement producing centers cannot boast of having any very great supply on hand. The inevitable result is that prices are getting back to the point where they were before the panic set in. In fact, if the present rush of business keeps up very much longer it will be only a very short while. Prices will not go as high as they did once before when there was a shortage, but they will at least get to the point where the manufacturer will make a fair profit on his investment.

The dealer in builders' supplies does not object to paying a higher price for cement. In fact, he would rather do business when the market is rising than when it is falling. It is a dangerous proposition to lay in stock on a falling market because you never know just where you are, but it is quite different when the market is going upward, as there is no chance to lose. The great majority of the dealers in the country are laying in stocks. In fact, the majority of them are carrying bigger stocks today than they have during the last several years.

The railroads are again taking cement in large quantities. Municipalities are authorizing sewer construction and street improvement. In every large city in the country you will find the concrete worker busy erecting buildings, warehouses, and laying sidewalks. There does not seem to be any likelihood of a cessation of business now that it has become well started and it is only fair to presume that the ball once started will continue to keep rolling. The cement manufacturers are once more wearing the smile that won't come off and they are likely to wear this smile for years to come, as there is very little chance of the market going off like it did a few years ago unless some unforeseen commercial catastrophe should overtake us again.

CANADIAN CEMENT MERGER.

Montreal, April 19.—The Western Canada Cement & Coal Company, commonly known as the Calgary Company, will, notwithstanding the fear expressed at the recent meeting of the Canada Cement Company, come under the control of the merger, so-called. When the representative of the Western Company's bondholders first arrived from London the difficulties were so great that it was generally supposed that litigation of a serious character would ensue. At the end of a few weeks, however, it was announced that although it was impossible for the merger company and the Calgary concern to get together, a great deal of the misunderstanding had been explained away, and in fact all danger of a conflict in the courts had been averted. It appears that subsequent negotiations ensued with satisfactory results, as the following official statement has been given out:

"An arrangement has been effected under the terms of which the Western Canada Cement & Coal Company, Limited, will be reorganized and a new company formed, which will be controlled by the Canada Cement Company, the latter company furnishing sufficient capital to insure the success of the new Western Company. A few matters remain to be completed and time will be required before the arrangement can be finally given effect to. With the present demand for cement in the Canadian West the future of this company should be good for all concerned."

INSPECTION TRIP.

Special Train Takes Delegation of Chicago Officials to Buffington and Gary, Indiana.

Chicago, March 24.—At the Randolph Street station of the Illinois Central railroad a special train consisting of a locomotive, baggage car and five Pullmans, chartered by the Universal Portland Cement Company, started promptly at 9:15 this morning with a delegation of city officials, aldermen, business men of Chicago and park commissioners, to inspect the great cement plant of the company at Buffington and the mills of the Illinois Steel Company at Gary, Ind.

Arriving at Buffington at 11 o'clock, the entire party, under the guidance of officials at the plant, was shown the process of manufacturing cement and preparing it for shipment in sacks. The process was explained in detail, which proved interesting and instructive to many of the guests, who were not familiar with the modern methods in use at this, one of the largest individual cement plants in the country. The day was pleasant, but warm, especially so to the visitors passing by the mammoth rotary kilns where the material is burned. More than an hour was consumed in inspecting this great plant. When the party again boarded the special train the visitors were served with a luncheon prepared by one of Chicago's famous chefs, which assuaged the hunger produced by the arduous task of inspection amidst a cement dust laden atmosphere. Parched lips and dry throats were gratefully restored to their normal status by imported waters and other popular beverages.

Arriving at Gary at 2 o'clock, the visitors took in all the interesting points of this new and wonderful steel manufacturing town. After this the party boarded a train of flat cars for movement through the steel mills. Inspection was made of the ore docks, ore unloaders, blast furnaces, power plant, open hearth furnaces and rail mill of the Illinois Steel Company. At 5 o'clock the visitors again boarded the special train for home, which arrived at Chicago at a little after 6 o'clock p.m. Bright skies and sunshine produced a perfect and ideal summer's day, making the trip a very enjoyable and interesting outing.

THE ATTENDANCE.

Fred A. Busse, mayor of Chicago; John J. Hanberg, commissioner of public works; W. A. Evans, commissioner of health; Frank T. Fowler, superintendent of streets; Alfred F. Kenney, president board of local improvements; Felix A. Norden, member board of local improvements; John Minwegen, member board of local improvements; V. J. Jozwiakowski, member board of local improvements; John B. Hittell and C. D. Hill, chief engineers; Harry L. Bailey, city cement tester; Murdock Campbell, building commissioner; W. J. Raymer, commissioner of track elevation; John L. Whitman and George Mason, House of Correction; George Samuel, acting city engineer; William Kolacek, president West Chicago park commission; George A. Mugler, secretary West Chicago park commission; Frederick W. Erickson, commissioner; William C. Eggert, commissioner; Joseph A. O'Donnell, commissioner; Iver L. Quakes, commissioner; Charles B. Pavlicek; Linn White, chief engineer South park commission; B. J. Mullaney, F. W. Reilly, William E. Quinn, W. K. Trumbull, Robert Knight, S. F. Thomas, James Slattery, John

J. Sloan, Charles A. McCullach, H. A. Allen, Karl L. Lehmann, H. W. Clausen, T. G. Pihlfeldt, John C. Parks, Harry C. Parkes, Patrick White, William J. Roach, Theodore C. Phillips, H. L. Lucas, E. A. Miller, H. N. Baker, E. P. Scott, C. S. Rowe, John A. Lenhartson, F. J. McDonough, William R. Northway, W. H. McCreadie, R. S. Spaulding, W. J. Burnes, W. O. Johnson, Dan Maher, M. B. Reynolds, P. Sliffert, L. S. Marsh, V. Nicholson, J. H. Barrett, C. D. Golden, J. G. Heneghan, F. C. Martini, E. von Placheck, W. R. Brown, George Bard, Mr. Van Baba, John Mollander, F. R. Van Hamm, Rock Products.

There are a great many fire underwriters' pumps used in Chicago. This pump is one that must pass the examination of the engineer of the Chicago Underwriters' Association. The American Well Works of Aurora made a pump of their own design placed in a theater building in Chicago and notified the underwriters' engineer to come and watch the test. He approved the work the pump did and allowed the pump to remain in the building. "This is something no other firm has accomplished," said E. W. Dunton, secretary of the Aurora company, "and we naturally feel gratified. We manufacture deep-well, centrifugal, irrigation and reclamation pumps. Our shipments this year have been three times greater than any year we have been in business. We are rushed with orders and we feel that it will tax our capacity to the utmost to fill them."

ELECT DIRECTORS.

The Coploy Cement Manufacturing Company met at the plant at Coploy, Pa., early in the month and elected the following directors: Ralph Blum, Arthur K. Kuhn, Joseph L. Berg, Gabriel Bluf, William H. Harding, Samuel Y. Heebner, Penrose Fleisher, Frank H. Bachman, Ferdinand L. Loeb, Abraham Israel, Frederick J. Geiger, Charles M. Saeger and C. H. Moyer.

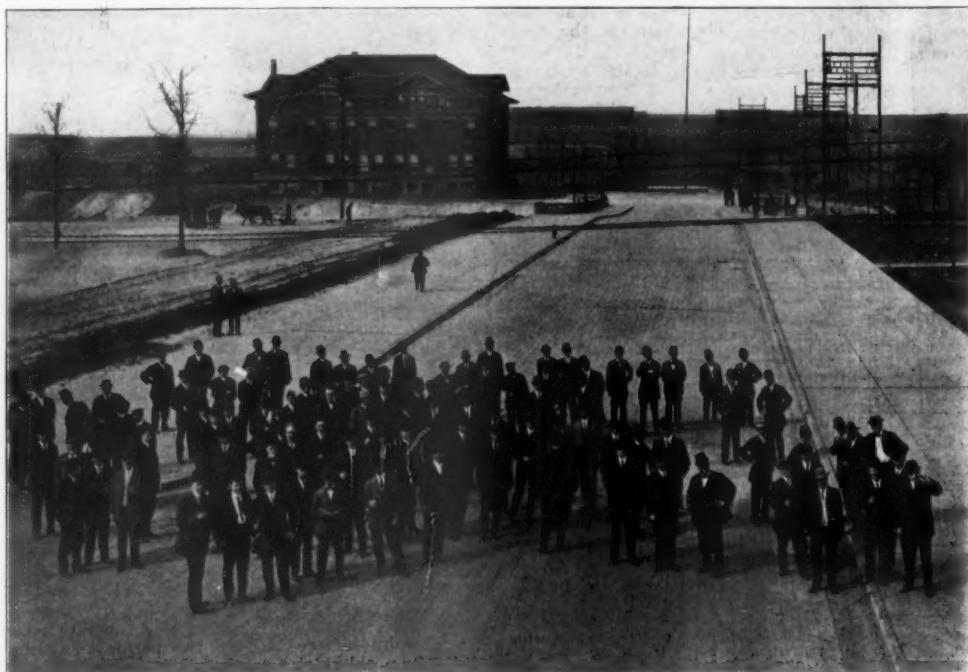
LILY WHITE CEMENT COMPANY.

Bethlehem, Pa., April 20.—The contract for a steel building, machinery and their installation for the Lily White Cement Company has been awarded to George S. Emerick, of Nazareth, who will commence work thereon immediately. The mill will have a daily capacity of 500 barrels. This company last year acquired by purchase a tract of about forty-six acres of land on the L. & N. E. R. R. at Heck's Crossing. The property is underlaid with an immense deposit adapted for the manufacture of white cement. There is now on the property a well-constructed siding and a quarry.

NEW PRESIDENT FOR MARENGO CO.

ROCHESTER, N. Y., Feb. 18.—S. A. Ford, secretary and treasurer of the Marengo Portland Cement Co., has returned from Cleveland and Youngstown, Ohio, where the main offices are located, and says that the company's big plant will be started as soon as the season opens. In the meantime two new kilns and some alterations and repairs will be made, increasing the capacity materially.

E. L. Buell, of Detroit, succeeds H. G. Hamilton, of Youngstown, as president, and Mr. Ford takes charge of the local business in place of W. J. Thompson, who left here a few weeks ago.



CHICAGO CITY OFFICIALS AT GARY, IND., AS THE GUESTS OF THE UNIVERSAL PORTLAND CEMENT COMPANY.

ROCK PRODUCTS


The National Builders' Supply Association

Meets Annually.

OFFICERS

Charles Warner, Wilmington, Del.	President
Henry W. Classen, Baltimore	Treasurer
James W. Wardrop, Pittsburgh	Secretary

STATE VICE-PRESIDENTS.

Arkansas	Charles E. Taylor, Little Rock
California	C. J. Waterhouse, San Francisco
Connecticut	F. H. Johnston, New Britain
Delaware	Charles C. Bye, Wilmington
District of Columbia	S. D. Lincoln, Washington
Georgia	P. G. Hanahan, Atlanta
Indiana	Edward Lodgson, Indianapolis
Illinois	H. H. Halliday, Cairo
Idaho	Francis C. Sanders, Boise
Iowa	R. Hay, Dubuque
Kentucky	Owen Tyler, Louisville
Louisiana	John J. Voelkel, New Orleans
Maryland	J. J. Kelly, Baltimore
Massachusetts	James G. Lincoln, Boston
Michigan	C. N. Ray, Detroit
Missouri	Howard McCutcheon, Kansas City
Minnesota	John Harry, St. Paul
New Jersey	J. M. Campbell, Passaic
New York	Henry Schaefer Jr., Buffalo
Ohio	J. P. Carlile, Columbus
Pennsylvania	John Strauss, Pittsburgh
Rhode Island	G. M. Kelly, Providence
South Carolina	A. G. Grower, Greenville
Tennessee	W. W. Fischer, Memphis
Texas	W. L. Macete, Houston
West Virginia	F. P. Jones, Wheeling
Wisconsin	R. C. Brown, Oshkosh
Washington	S. W. R. Dailey, Seattle

EXECUTIVE COMMITTEE.

Charles Warner, Chairman; Frank S. Wright, Chicago, Ill.
Henry A. Moore, Philadelphia, Pa.; Ambrose Tomkins, Newark, N. J.; Edw. S. Walton, Youngstown, Ohio; Gordon Willis, St. Louis Mo.; A. E. Bradshaw, Indianapolis, Ind.; Walter F. Jahncke, New Orleans, La.; V. H. Kriegshaber, Atlanta, Ga.
Official Organ, ROCK PRODUCTS
Editor, ROCK PRODUCTS
Advertisement Manager, ROCK PRODUCTS

RINGING MESSAGE.

President Charles Warner of the National Builders' Supply Association Issues His First Official Statement, Which Is of Vital Interest to the Trade.

Charles Warner, of Wilmington, Del., newly elected president of the National Builders' Supply Association, has issued his introductory message to the members of the organization, which is equally applicable to all of the dealers of the country. This message was prepared on the very day that the last issue of Rock Products went to press and for that reason it was impossible to include the same in that number. President Warner is well known to the trade as one of the leading lights, energetic, conservative and a very successful business man, and it is certain that his administration will be marked with some truly Rooseveltian strenuousness. It is for the members of the organization, as well as those who ought to be members, to consider well this keynote which follows:

Those of us actively associated with Frank S. Wright during his presidency of the past year learned recently, with deep and sincere regret, that it was absolutely essential in the interest of his health to withdraw from active work in our behalf. We will greatly miss his leadership, though we will still benefit by his well balanced counsel, as a member of our executive committee.

It was my misfortune to have to leave Chicago after the first morning session of our last convention on account of important business matters in the East. I personally felt the loss of missing the subsequent sessions because it was the largest, most practical and most enthusiastic convention of builders' supply men ever held.

The association at the second day's session selected me as its president. It is impossible for me to properly express my full appreciation of this honor, though realizing the work and responsibilities it carries with it. Though interested largely in the retail business in both Wilmington and Philadelphia, and constantly striving to improve the working conditions and protect the reasonable rights of my fellow dealers, I want you to know personally that I am also identified, to a considerable extent, with the manufacturing and wholesaling of cement and lime products.

This, of course, was fully known to your nominating committee, and I am reliably informed that their selection was largely based upon the knowledge had on both sides of all questions involved, and I refer to it now simply for your personal information, and to prevent any subsequent misunderstanding.

Our association work is right and proper, and growing in necessity; therefore, it must and will go on.

It is evident that a great majority of our active and associate members believe that their interests are abso-

lutely mutual on the most vital issues of all, viz.: TO SECURE A MAXIMUM TONNAGE AT A FAIR PRICE WITH A MINIMUM OF COMPLAINT TO THE END THAT BOTH THE PRODUCER AND RETAIL DISTRIBUTOR SHALL HAVE A GOOD PROFIT AFTER DEDUCTING ALL CHARGES AND EXPENSES.

All other issues which may arise between our two classes of members are much less important than this MAIN ISSUE.

We are all inclined at times to let the minor issues which have been occupying our attention cloud our vision and destroy the perspective, thereby interfering with our opportunities for greater profits.

With these principles in mind, and considering the status of the men who have been acting as officers and executive committeemen, it certainly is apparent that our members are fully satisfied that men having a detailed acquaintance with the problems of both manufacturer and retailer, and realizing the trials and tribulations of both interests, are fully qualified to honestly work out the questions involved.

This harmonious condition is certainly an omen of large success for the future, and believing that your officers will have the united and cheerful support of every active and associate member to produce this result, I accept the presidency of the National Builders' Supply Association for 1910, and with these principles and this understanding clearly in mind will do my utmost to further strengthen our organization, to adjust the issues arising, and to secure to ALL members the profits and rights due them.

IT'S UP TO YOU, MR. DEALER.

The following comments exhibit the expression of opinion of several of the leading dealers in builders' supplies doing business in Chicago and vicinity. The same conditions may be equally applicable to other metropolitan markets and it constitutes an appeal to the principal dealers as well as the manufacturers to co-operate in making the handling of the great staple Portland cement more satisfactory and profitable.

During the past years the building material dealer has had a just cause for complaint against the cement manufacturer on account of the cement manufacturer quoting the contractor for delivery by team at a margin not much greater than what the dealer was quoted on carload lots. To this complaint the manufacturer has retorted by saying that he was simply meeting conditions which had been created by the dealer himself.

This spring a number of the manufacturers have agreed to test the accuracy of their statement that the conditions were the creation of the dealer, and with that end in view are quoting the contractor for team deliveries at a margin much greater than they have been doing in the past. Every dealer in Chicago has been notified what this quotation is and it is now up to the dealer whether this and future quotations shall remain at a margin which will enable him to make a fair and legitimate profit on his cement sales. This much can be assured, that should the dealer by his actions indicate that the margin which the manufacturer has made is larger than the dealer wants and that the dealer is content to handle cement delivered to the job, collect the bags and send them back to the mill for a margin of 10 or 15 cents per barrel, he will have ample opportunity during the coming season to do so, from information which comes to us from a perfectly reliable and undoubted source it is plain to be seen that the dealer of this city is on trial before the manufacturer, and if he will not consent to and put into effect a determination to assist his brother dealer in getting a living margin of profit he must face the alternative of seeing the manufacturer take and control the bulk of the retail business, leaving to him what crumbs can be picked up.

This is the psychological moment and it is time for the Chicago dealer to bury his personal likes and dislikes and get together with his fellow dealer, working for the good of all.

CHLORIDE OF CALCIUM IN CONCRETE MIXTURES.

One of our friends in the builders' supply business asks us the following question and, as it is of vital importance, we are answering it so that other dealers, and, in fact, anyone engaged in the building material business may have the benefit of our advice:

"What effect upon the strength of concrete has a mixture of ten to twenty per cent chloride of calcium by weight of water? Also, will it cause the concrete to chip?"

The effect of calcium chloride on cement mixtures is practically of recent demonstration, consequently a great deal remains in theory which must be put on a practical basis. It seems to be the general consensus of opinion among those who are familiar with this compound and its peculiarities, that a two or three per cent solution is ample to give the desired results and far enough within bounds to prove of safety. Percentages ranging above ten would give highly saturated solutions having the probable tendency to rapidly shorten the initial setting time of the cement and directly interfere with its perfect crystallization. Naturally this would seriously decrease the original strength of the concrete with after effects which might altogether disrupt the bond. Later, its inclination to redissolve in the presence of moisture might cause the disintegration of the cement surface, penetrating deeper and deeper until the structure, in time, was pretty well destroyed.

The effect of chloride of calcium is somewhat analogous to common salt, technically known as sodium chloride, frequently used in concrete mixtures to prevent freezing. A two per cent solution of calcium chloride will perceptibly retard the setting of the cement and will lower its freezing tem-

perature to a point where for all ordinary purposes concrete structures can be erected in extremely cold weather without the accompanying bad effects so common to the majority of cases where special precaution is not exercised. In any event, care should be taken to protect the green concrete from frost by resorting to the usual methods of covering with straw, etc.

We doubt if high percentage of calcium chloride would cause the cement to chip. It would have rather the opposite effect; that is, slow disintegration. This is a subject, however, that will command further investigation and we hope to have more exhaustive data at hand in the near future.

BUSINESS VERY GOOD.

Newark, N. J., April 18.—There are a great many lines of business that are successfully carried on here, and an establishment of the highest standing to which we desire to refer is that of Wolf, Stewart & Co., dealers in masons' materials, lime, cement, lath, brick, bluestone, drain pipe, etc., grain and feed. The business was established in 1887 and in 1894 the masons' material line was added. Their office and warehouse is located corner Waverly and Pesine Avenue, and enjoys the very best of railroad facilities, being located on the Pennsylvania Railroad line. They give employment to seventeen people and report a very good business, selling their goods throughout Greater Newark and surrounding towns. Charles Wolf, Charles H. Stewart and Samuel W. Stewart are the members of this firm. All of whom are well-known public-spirited citizens of Newark.

LARGE DEALERS IN NORTHWEST.

Superior, Wis., April 21.—The Superior Manufacturing Company, of this city, was established in 1889 by W. P. Cokey. The company is a large and important factor in the builders' supply trade in the Northwest, and handles Kelly Island lime, Hecla Portland cement, Harderell wall plaster and Crystal Lake salt. Besides the plant here, they have two warehouses in Minneapolis; and ship mixed carloads of builders' supplies through the entire Northwest. The officers of the company are J. E. Veblen, president; A. L. Veblen, vice-president, and F. W. Rabe, secretary.

BUSINESS SHOWS EARLY ACTIVITY.

P. F. McCarthy, President of the Interstate Material Company, of Davenport, Iowa, favored us with a recent visit. He says that the supply business has already opened up actively in his market and they have already done a good season's business. They operate an extensive sand reclaiming plant on the Mississippi River, which is equipped with dredge-boats and barges, together with a sand-washing plant. This being one of their principal specialties, also has all the business it can take care of.

TRACTION COMPANY TO OPERATE CRUSHER.

Pittsburg, Pa., April 19.—Claire Kelly has sold his quarry and plant near Pitzere Crossing to the Mahoning & Shenango Valley Railroad. The company will crush rock and use it for ballast purposes.

CRUSHED ROCK FOR ROAD BUILDING.

Fort Deposit, Md., April 21.—E. M. Good, a contractor of Havre de Grace, has leased property near this place and will open a quarry to supply the Good Roads Commission of Maryland with rock. A crushing plant of 1,000 tons per day capacity will be erected. It will be operated under the name of the Keystone Quarry & Stone Company.

MAY ESTABLISH CRUSHING PLANT.

Mt. De Chantel, W. Va., April 17.—F. P. Jones, Albert M. Schenk and Peter G. Garavas, all of Wheeling, W. Va., are reported as interested in the establishment of a plant for crushing limestone for railroad ballast, cement walks, etc.

MARQUETTE COMPANY NOW OPERATING.

Marquette, Mich., April 21.—The Marquette Stone Company have commenced operations after being shut down since last fall. P. B. Spear, the manager, anticipates a very good season and already has several large contracts for crushed rock for road purposes on hand.

The Superior Lime & Cement Co., of Minneapolis, Minn., has been incorporated for \$50,000. The incorporators are: A. O. Veblen, J. A. Larimore, P. G. Speakes and T. J. Veblen.

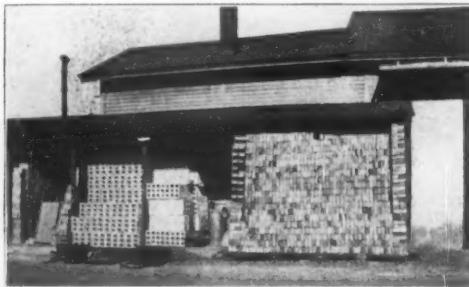
The Burroughs Building Material Company, of Brooklyn, N. Y., has been incorporated for \$100,000 to manufacture and deal in brick, stone, cement, lath, pipe, etc. The incorporators are W. Burroughs, C. A. McGuire and J. W. Gaylor.

ROCK PRODUCTS

APRIL 22, 1910.

SEES BRIGHT PROSPECTS.

Many of his friends in the National Builders' Supply Association will recognize in the accompanying illustrations the manly form and genial countenance of B. F. Marsh, the enterprising builders' supply man of Worcester, Mass. In one of them Mr. Marsh is shown with a truck and it illustrates how the rock ribbed Yankee overcomes a



BRICK AND PARTITION TILE DEPARTMENT OF B. F. MARSH, WORCESTER, MASS.

strike of his stevedores. This happened last spring right at the busiest part of the season. Mr. Marsh left his desk and became chief warehouseman and trucked the goods from the warehouse to the wagons in person and took care of his most important order and he says that the exertion really did him good and made him a younger man, as he felt bright as a kid.

A little later on as the activities of the season waned Mr. Marsh decided that it was up to him to take a fishing trip. Now it just happens that in his early days at the old New England homestead there was a mill pond where he acquired a vast fund of piscatorial lore, but in the busy tide of business during the past twenty-five years he has refrained from the allurements of the sport until last fall when he took down his old rod and bait box and went to the fishing banks down in Nova Scotia.

Of course he accumulated a number of fish stories which will not be related here because all of the successful dealers are fishermen themselves and know the beginning, the middle and the end of everybody's fish story.

One member of the party took a picture of Mr. Marsh under the tree resting after his gigantic labors as a fisherman. He "allows" that he can find time in his business engagements every year for a similar trip and wonders now why he thought for so many years it was impossible for him to get away from his desk.

Mr. Marsh's establishment is one of the leading concerns in his locality. He issues a very comprehensive catalog in which are carried such standard goods as Phoenix cement, New England lump limes, Tiger hydrate and the U. S. Gypsum Company's line of plasters, besides clay goods of every description, with steel and iron building specialties. Mr. Marsh reports that his business has enjoyed a steady growth for the last few years and the present season contains a very bright prospect.

ARKANSAS WILL HAVE A PLANT.

Little Rock, Ark., April 16.—The White Cliffs Portland Cement Co., the property of which is located at White Cliffs, has been incorporated, the capital be-



B. F. MARSH ON A REAL VACATION IN NOVA SCOTIA ON A FISHING TRIP.

ing \$100,000, all of which has been subscribed. The offices of the company are to be in Little Rock and White Cliffs. The incorporators are B. J. Lane, president; George Vaughan, vice-president; F. B. Lane, secretary and treasurer.

AMONG THE RETAILERS.

Joliet, Ill., April 20.—Building operations here have opened much earlier than previous years, weather conditions having been exceptionally favorable. Great activity in these lines has prevailed during the past two months. Indications point to an exceedingly active season. Joliet is in the full enjoyment of prosperity, and its builders' supply dealers, among the most progressive and wide-awake in the West, are making preparations to handle the big volume of business in sight this summer. They are optimistic concerning the future and express the belief that they will have all the business they can handle this year.

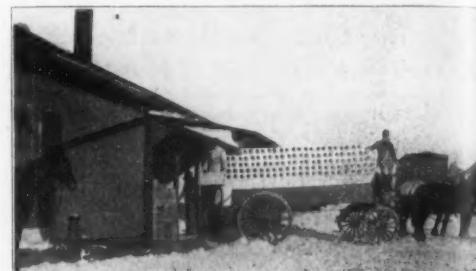
A. W. Hays.

One of the live and energetic dealers in builders' supplies in Joliet is A. W. Hays. He keeps his eyes and ears open, is continually on the lookout for big business, and as a rule gets it. Last March he landed a contract for furnishing the drainage system of Joliet with 11,000 barrels of Marquette and Medusa Portland cement, and is supplying this year all the sewer pipe used in the city. His coal and building material yard is centrally located at 604 Cass street with a switch track from the Joliet & Eastern road running through the entire length of the yard. He carries 1,500 barrels of cement, lime and plaster in the warehouses. Speed's Louisville cement, Atlas, Chicago AA, Marquette and Medusa Portland cements, United States Gypsum Co.'s plaster, hydrate and lime in bulk from the Western Lime & Cement Co., Mil-

bought more cement last year than ever before and the habit is increasing this year."

A. C. Johnston & Son.

One year ago A. C. Johnston & Son, heavy operators in coal, put in a full line of builders' supplies in their yard at Fourth street and Eastern avenue. Their judgment in extending their business in these lines has proved to be good as they have made a big



ONE OF B. F. MARSH'S DELIVERY WAGONS.

success of the venture. Mr. A. C. Johnston stated that they had furnished three-quarters of all the common brick used in Joliet last year and sold larger quantities of cement, lime, etc., than they had reason to expect. Their yard is large and well arranged. Two switch tracks, one from the Chicago & Alton and one from the Santa Fe road, pass through the yard. A modern warehouse with a storage capacity of 1,000 barrels of cement, and two bins holding a carload of bulk lime each and built on the refrigerator plan, stand close to the switch tracks. Universal and Chicago AA Portland cement, plaster from the Grand Rapids Plaster Co., hydrate and lime in bulk are stored in warehouse and bins. Sewer pipe, wall coping, fire brick, fire clay and drain tile from Akron, O., sand, gravel, crushed stone, common and pressed brick are stored in sheds and bins in various parts of the yard. The business was established by A. C. Johnston in 1892, and in 1897 Milton S. Johnston became a member of the firm.

Buchanan-Daley Company.

Ed. R. Daley is the resident partner of the Buchanan-Daley Co., dealers in coal, lumber and builders' supplies with yard at Allen and Desplaines streets. There are two switch tracks from the Chicago & Rock Island road, one running through the yard, the other to the coal hopper. Their warehouse stores 2,000 barrels of Owl Portland cement, United States Gypsum Co.'s plaster, and hydrate and lime in bulk from the Western Lime & Cement Co. Next spring they will handle a complete line of builders' supplies. W. D. Buchanan owns lumber and coal yards also in Odell and Gardner, Ill., making his residence in Odell. Ed. Daley, as he is familiarly known to hosts of friends in the middle West, has been in the lumber business many years, knows everyone in the trade, is well liked and has the reputation of making business hum. Of this he has given strong evidence since he became a member of this firm in Joliet.

MONROEVILLE, O.

There has been no activity in building operations in this little town proper, but improvements on farms



HANDY LITTLE WAGON FOR SMALL ORDERS.

in the surrounding agricultural districts have more than kept the leading dealers in builders' supplies busy. The farmers in this section of the state harvested big crops and prosperity is apparent.

Hess Hardware Co.

One of the oldest houses in the county, and doing an exceedingly large business in Monroeville is the Hess Hardware Co. at Main street and Milan avenue, established thirty-five years ago. Its yard where builders' supplies are handled is finely equipped and arranged. The shipping facilities are of the best.

ROCK PRODUCTS

The warehouse has a capacity of 2,500 barrels of lime and plaster. Castalia Portland cement, lime in lump and hydrate from the Kelley Island Lime & Transport Co. and Ohio & Western Lime Co.; plaster from the Toledo Builders' Supply Co., sewer pipe from the American Sewer Pipe Co. and Robinson Clay Product Co., sand and gravel complete the line of builders' supplies this company sells throughout the county. The demand for cement from farm districts Secretary Wilhelm reports are greater than in any previous year. The officers of the company are Wm. Hess, president; Robert F. Hess, treasurer, and J. C. Wilhelm, secretary.

F. H. Mason & Son.

F. H. Mason & Son are large manufacturers of brick, building blocks, drain tile and dealers in builders' supplies in Monroeville. Their plant and yard has a switch track from the W. & L. E., L. S. & M. S. and B. & O. railroads, giving them excellent shipping facilities. The warehouse holds 250 barrels of cement, lime and plaster. This firm handles Diamond Portland cement; lime in bulk and hydrate from the Kelley Island Lime & Transport Co., United States Gypsum Co.'s plaster, Robinson Clay Product Co.'s sewer pipe, crushed stone and gravel. Mr. Mason reports business fairly good this year and the outlook good.

E. E. Scouton.

There has been a large demand for concrete blocks in the agricultural districts surrounding Monroeville which was largely met by E. E. Scouton on Monroe street and the L. S. & M. S. R. R., who manufactures hollow blocks and well covers. These blocks are used for foundations in barns and other buildings on farms, are well thought of, and have stood the test well for four years. Mr. Scouton's output this year has averaged 500 blocks a month.

BELLEVUE, O.

Great business activity characterizes this town. There will be a decidedly large amount of building done here and in the surrounding agricultural districts. Builders' supply dealers have been busy this year and are happy in the thought of even brighter prospects for the coming season.

W. H. Gardner Grain & Mill Co.

One of the old and prominent firms in Bellevue is the M. H. Gardner Grain & Mill Co., grain dealers and merchant millers, who also handle quite extensively Castalia and Diamond Portland cements and plaster from the Toledo Builders' Supply Co. This business was established twenty years ago. The officers of the company are W. H. Houle, president, W. H. Gardner vice president and general manager, and E. F. Linehard, secretary.

Gross Lumber Co.

In connection with a complete line of builders' materials the yard of the Gross Lumber Co., established in 1881, has a well equipped plant for manufacturing concrete blocks, ornamental porch and household work such as mantels, friezes, mouldings, etc. Mr. C. A. Gross, manager of the company, put in this plant about a year and a half ago, made the designs from which the moulds are constructed to produce this work and has the general supervision of this department, which as yet is only in its infancy but does an exceedingly large business furnishing pillars, capitals and other ornamental pieces of concrete work in colors for decorative features on porches and in buildings. The yard has a switch track from the Nickel Plate road passing close to the warehouse which holds over 1,200 barrels of Medusa and Atlas Portland cements, hydrate from the Woodville Lime & Cement Co., and plaster from the United States Gypsum, American Gypsum and Toledo Pulp Plaster companies. It has on hand a large supply of sewer pipe from the American Sewer Pipe Co., including fire brick, fire clay and wall coping, asbestos shingles from the Asbestos Shingle, Slate & Sheetng Co., Ann Arbor, and roofing from the Asphalt Roofing Co., Saginaw, Mich. Manager Gross said: "Business is very good and prospects for the coming season better." The officers of the company are Martin Gross, president and treasurer; George Smith, vice-president, and M. F. Gross, secretary.

McClain & Ryan.

Eight years ago McClain & Ryan started in the coal business, locating their yard at East Main street and the Pennsylvania railroad, a switch track running into the yard. Three years ago they started handling builders' supplies, built a warehouse with a storage capacity of 600 barrels of cement close to the switch track, put in machinery to manufacture concrete blocks, the output of which is about 3,500 a month, and

have done a large and profitable business since then in building material. They handle Universal Portland cement, sewer pipe from the Toledo Builders' Supply Co. and Robinson Clay Product Co., as well as sand and gravel. Mr. McClain said: "Our cement trade was much larger last year than 1908, the farming districts near Bellevue are using cement in quantities unheard of up to this spring, and yet there are many indications that this year they will use still more."

Max Endle.

Max Endle has an ideal location for his yard at East Main street and the Pennsylvania railroad, with a switch track running alongside its entire length providing for excellent shipping facilities. Its arrangements in driveways and location of warehouse which holds over 500 barrels of lime and cement, are convenient and practical for economical handling and prompt delivery of these materials, which include Edison Portland cement, lime in lump and hydrate form from the Kelley Island Lime & Transport Co. and Ohio & Western Lime Co., and sand and gravel. Farmers have bought much more cement last fall than in former years, while business in general this spring is good. The same conditions hold good in coal, which is Mr. Endle's principal specialty.

CLYDE, O.

Business here has been fair this year despite the fact that very little is being done this spring in the building line. Many improvements on farms near Clyde in the way of building barns, laying of concrete walks, etc., have kept dealers in builders' supplies busy and no complaints are heard. Every one talks of bright future prospects.

J. Forsyth.

J. Forsyth, owner of several lumber yards in the northern part of the state, possessed of ample capital, and said to be one of the bright, active, energetic, go-ahead business men who force success in any enterprise they take hold of, recently bought the lumber yard of F. M. Parmenter in Clyde. Its location is a good one, being at the corner of West Maple and Mulberry streets with a switch track running into the yard from the Big Four railroad. He contemplates making a number of improvements; among them, building a large and modern warehouse for storing cement, lime and plaster and the carrying of a full line of builders' supplies, by next spring. Location, town and surrounding territory all favor the probability for a large business in building material, especially with a man like Mr. Forsyth at the head.

Clyde Artificial Stone Co.

Fifty thousand concrete blocks is the yearly output of the Clyde Artificial Stone Co. These are used mostly in Clyde for foundations and superstructures. It is asserted that not a single block manufactured by this company in the past four years and used in buildings erected right here in the town has deteriorated. This is due, it is claimed, to the great care taken and the high class material used in making them. Lehigh Portland cement, Canadian sand and blue limestone dust are the component parts of which these blocks are manufactured. A switch track from the Big Four railroad to the plant provides the best of shipping facilities. The officers of this company are Thos. P. Dewey, president; J. F. Hiner, secretary and treasurer; H. P. Kintner, manager, and R. W. Hiner assistant manager. The office is located at 516 North Main street.

T. P. Hurd & Sons.

Nearly forty years ago T. P. Hurd established the business widely and favorably known under the name of T. P. Hurd & Sons, at 14 Main street. Mr. Hurd of late years spends most of his time improving his beautiful farm near Clyde, leaving the management of the business to his sons, Charles F. and Herman, who are among the prominent and wide-awake citizens of the town. Besides handling builders' supplies they own the largest grocery store in the county. Their warehouse has a storage capacity of 750 barrels of cement, lime and plaster, Castalia Portland cement, lump lime from Gottron Bros., Fremont, O., hydrate in sacks from the Ohio & Western Lime Co., Crescens plaster from the Toledo Builders' Supply Co., and fire clay comprise their general line of builders' supplies. Charles F. Hurd reports the use of cement in farm districts increasing fast and business very satisfactory.

HOW TO BE A CERTAIN FAILURE.

First—Consult Tom, Dick and Harry in matters of business, and then follow not the best but the last advice given.

Second—Instead of marching straight over trouble with a firm front, crouch and let it march over you.

Third—Have no mind of your own, no self-reliance. Be as unstable and shifting as the sand on the seashore.

Fourth—if you are knocked down today, conclude that is your place indefinitely.

Fifth—Because it rains today and is dismal, make up your mind that it is going to be rainy and dismal always.

Sixth—Never look among your clouds for silver linings.

Seventh—Follow these directions closely, and failure will track your steps like a bloodhound; in adversity you will be as worthless as an old rotten sheet for a sail in a gale of wind; when fire comes, as come it must, you will find all the metal you ever had in you is turned to dross; and in the fire, you know, dross never purifies nor refines—it only burns—Chicago Tribune.

BIRMINGHAM.

Birmingham, Ala., April 19.—Although business conditions in the line of building materials are only fairly good, there are signs of immediate activity. In fact the year of 1910 promises to break all records; in proof of this statement it may be said that Birmingham led all the cities of the country with the exception of one in the percentage of increase in building permits for the month of March over the month of February. Building permits already aggregate for the first three months \$893,312.

It may not be out of place to state here that a score of millions will be expended in the work of building this year. Among the great building operations planned the following might be mentioned as the most important: The Schwartzschild & Sulzberger Company brick building on the corner of First Avenue and Twenty-second Street, at a cost of \$30,000, while on Morris Avenue and Twenty-third Street the Armour Company will erect a \$70,000 refrigerating and packing plant. The Knights of Pythias and Odd Fellows will each erect a home to cost about \$40,000. In addition to these, the Y. M. C. A. and Y. W. C. A. buildings, a large hotel, the South Side Baptist Church, two new schools, a girls' industrial home, the Louisville & Nashville shops, the A. B. & A. freight depot, the Southern Automobile Factory, the tremendous plant of the American Steel & Wire Company, the annex to the department store of Loveman, Joseph & Loeb, several wholesale structures and many others will help to make Birmingham a record-breaker in the building line.

The Jefferson Brick Company reports a very good business.

The Ensley High School is rapidly nearing completion. The building is 204'x109'. It contains over 21,000 square feet of floor space and has an auditorium with a seating capacity of 1,200 people.

The Carolina Portland Cement Company reports business to be fair, with prospects of better conditions.

The American Tile Company has just completed the tiling of the lobby of the Southern Hotel at Bessemer.

Bonds in the sum of \$440,000 for the construction of two big North Side sewers have been guaranteed and bids on the work will be advertised at once. Two sewers will be built. The main sewer will follow Ninth Alley north, starting at Thirteenth street and emptying into Village Creek at the corner of Fifth Avenue and Walker Street. This sewer will cost \$300,000. The second and smaller one will extend from Avenue C and Twenty-eighth Street to Second Alley and Fourteenth Street, where it will meet the other sewer. This branch will cost \$140,000.

The large plant and warehouse of the Wood-Dickerson Lumber & Building Supply Company, situated on the corner of Eighth Avenue and Thirteenth Street, was recently completely destroyed by a disastrous fire.

The city of Birmingham will soon issue contracts to the amount of \$120,000 for street paving.

Announcements have been made that the Louisville & Nashville Railroad Company will erect a \$1,000,000 shop at Boyle's. The work of clearing the grounds at Boyle's has already started and the actual building of the shop is only a short time off.

One of the largest improvement contracts ever let in the South was awarded recently at a meeting of the board of directors of the Corey Land Company. Four hundred thousand dollars is the amount of the first contract and will be followed by others soon afterward. The names of the successful contractors have not yet been announced.

The Southern Bithulite Company, formerly of this city, are engaged in thriving business in Meridian, Miss.

The Watts Construction Company has received contracts for the building of a cement dam for the Caldwell Manufacturing Company, of Gadsden.

FROM OUR OWN CORRESPONDENTS

BUFFALO.

Buffalo, N. Y., April 18.—Trade conditions in the crushed stone and cement business are astonishingly active. The weather the dealers have been enjoying is simply immense, and they are getting after their contracts with an alacrity which is satisfying to all parties concerned. One of the biggest jobs in the cement line ever obtained by a cement concern is that in the hands of the Thorn Cement Company, which is furnishing Lehigh Portland cement to the Buffalo Dredging Company.

The Buffalo Dredging Company has the municipal contract for the construction of the intake tunnel, which is an important and expensive part of the city's waterworks system that is now in process of complete reconstruction. This contract has been under way for some time and all the cement that the Buffalo Dredging Company has called for in its work has been furnished by the Thorn concern. Just how many thousands of barrels of Lehigh Portland have been used has not been announced, but it is an enormous job and one that unquestionably will pay handsome returns.

An idea of the great amount of cement to be used in the building of this tunnel may be gleaned from the fact that the tunnel is to be 6,660' long. It will cost \$1,272,763.

Another big job that is being done with Lehigh Portland cement is the new plant of the Buffalo Cereal Company, in Abbott Road. This is quite an extensive undertaking and will be one of the valuable additions to Buffalo's many industries when completed. Mr. Tuthill, of the Thorn Company, stated to your correspondent that business for 1910 was way above the reports for 1909.

Crushed stone men take exception to a statement recently made by Park Superintendent Seymour, who declares that the days of crushed stone for good roads improvements are a matter of the past. Mr. Seymour said that crushed stone had proved injurious to automobile tires. In improving the seventeen miles of parkways of the city, the city is using gravel, which is rolled down and soaked in oil. However, crushed stone men are of the opinion that the article is invaluable for durable roadways and that it will still be continued in use in the building of roads.

Every crushed stone and cement man in Buffalo reports splendid conditions. W. E. Plummer, Jr., secretary of the Buffalo Sandstone Brick Company, declared the business his concern is doing is eminently satisfactory. Mr. Plummer is an optimistic and hustling personage, who sees the brighter things in life.

M. A. Reeb & Co., builders' supplies, say business is good generally.

The Buffalo Cement Company has every reason to be pleased with the business prospects and outlook for summer work.—Joseph A. McGuire, Buffalo Enquirer.

The Albert E. Baxter Engineering Company has prepared plans for reinforced concrete cereal mill and elevator to be built for the Buffalo Cereal Company. The mill will be 60'x100' and four stories high. The elevator will be about 40'x100' and will be 100' high.

Architect H. P. Beebe, of Fredonia, N. Y., has prepared plans for a concrete and brick theater to be built in Dunkirk for James Drohen.

A planing mill with cement floors will be erected at Franklinville, N. Y., by the Empire Manufacturing Company.

The Durolithic Company has received the contract for the erection of a new building for the American Radiator Company in this city. The structure will be 75'x192', with concrete floors.

The Aldrich Manufacturing Company, of Buffalo, will build a reinforced concrete addition to its plant.

Claiming that skating on concrete walks ruins the pavements, Commissioner Luck, of Tonawanda, N. Y., recently tried to put a stop to that practice, but the movement did not meet the approval of the board of public works. Four other commissioners were not in favor of depriving the children of their amusement.

An unusual proceeding has been started in Lockport, N. Y. Residents of East Avenue in that city have moved for the overthrowing of the ordinance calling for a cement walk on both sides of

that street. The work has been done and paid for. The petitioners claim that there was no necessity for the improvement. It is the first action of its kind ever brought there.

Among those who recently entered bids for paving in Buffalo were the German Rock Company, the Constantine Construction Company, F. V. E. Bardol and L. H. Gipp.

The Queenstown (Ont.) Quarry Company has the contract to build a boulevard along Niagara River from Niagara Falls, Ont., to Fort Erie, Ont.

In Jamestown, N. Y., recently the proposition to bond the city for \$50,000 for the construction of new concrete bridges was carried by 725 majority.

Henry Rumrill, Jr., deputy building commissioner of Buffalo, recently said building in Buffalo this summer promises to be a record breaker.

The Northwestern Construction Company is building a \$70,000 reservoir some distance from Bradford, Pa.

At Niagara Falls, Ont., during 1909 building permits aggregating \$80,000 were issued, as against \$60,000 in 1908. This spring the building trades there are unusually active and it looks as if all building records will be broken.

Charles Taylor, of Du Bois, Pa., who has a large stone-crushing plant at Falls Creek, Pa., may establish a plant at a point between Bingham and Dents, Pa.

Some laborers employed in mixing concrete at the Brooks plant at Dunkirk, N. Y., recently struck for an increase in pay. Later most of them wanted to return to work under the old wage, but they were told that their places had been filled and their services were no longer required.

Mayor Minard and others, of Lockport, N. Y., recently visited Albany, N. Y., at the request of the New York state engineer, to inspect the plans for the lift locks to be constructed on the barge canal in Lockport. The tentative proposition to abandon the lift-lock idea and enlarge the present system has been given up. According to the plans made public lately, there will be two mammoth lift locks. Much cement will probably be used in the work.

According to a recent report from Washington, D. C., a statement has been issued by the Senate Committee on Commerce showing the changes made in the harbor bill as it came from the House. Among the principal increases are: Dunkirk, N. Y., harbor, \$99,279; Plattsburgh harbor, \$25,500; Hudson River, \$1,000,000; Shooters Island channel, New York and New Jersey, \$100,000. As decided upon by the Commerce Committee of the Senate, the River and Harbor bill appropriations amount to \$52,566,418. New York state's share is \$4,352,920; for the waterway from the lakes to the gulf, \$1,050,000.

New York state barge canal contracts were recently awarded at Albany by Superintendent of Public Works Stevens as follows: Contract No. 21, providing for the excavation of the canal prism and constructing guard lock, highway bridge abutments and all appertaining work between the Genesee River and the east end of contract No. 6, at Rochester, to Lane Brothers Company, of Altavista, Va., for \$1,383,150; and contract No. 39, for dredging a channel in the Oswego River from Three Rivers to Fulton, a distance of nearly eleven miles, to James Stewart & Co., New York, for \$1,056,674.

The Buffalo councilmen have voted in favor of spending \$10,000 to build a concrete dock at the foot of Main Street in this city.

After the subject was discussed at several public meetings the Grade Crossing Commission has decided that viaducts instead of subways shall be built at Amherst, Austin and Tonawanda Streets in this city. The viaducts will cost about \$1,700,000.

The Batavia, N. Y., town board has decided to spend \$8,000 for the improvement of Genesee County highways during the coming year. This is exclusive of the Elba, N. Y., macadamized road.

The Dunkirk, N. Y., common council has decided to pave Swan Street in that city and approved the specifications for the resurfacing of West Fourth Street with asphalt.

Frank L. Cohen, of Buffalo, has been awarded the contract to construct the Shawnee-Cambria highway in Niagara County, N. Y. The contract calls for the construction of 3.02 miles of improved highway and the bid is \$23,300. Frederick J. Mumm, of Buffalo, has a \$28,000 contract to build the Eighteen-Mile Creek road in Erie County, N. Y., and John Miller, of Buffalo, will build the Batavia-Elba road in Genesee County, N. Y., for \$16,183. Among the other contracts awarded in this vicinity were East Rushford-Gordenville bridge, Allegheny County, N. Y., 4.68 miles, to the Northwestern Construction Company, Franklin, Pa., \$61,263; Canton to Corning, Steuben County, N. Y., 6.14 miles,

Northwestern Construction Company, Franklin, Pa., \$61,263; Scottsville to Mumford, Monroe County, N. Y., Monroe Roads Company, Pittsford, \$57,906; Castile Center to Perry Center, N. Y., Greece Construction Company, Rochester, \$54,925; Roberts road, Chautauqua County, N. Y., County of Chautauqua, by W. L. Notley, \$32,485. An appropriation aggregating \$11,603,000 for highway purposes is provided in bills reported recently by the New York Senate finance committee.

The Niagara town board has taken favorable action on the order of the New York state engineer for a concrete bridge over Cayuga Creek near La Salle, N. Y., costing about \$5,000.

E. M. Bedford, of Portville, N. Y., has begun the work of surveying for the proposed electric railway from Bolivar to Wellsville, N. Y., a distance of fifteen miles. The proposed cost is \$280,000. The line will be operated by the Southwestern New York Traction Company, of Bolivar.

The Buffalo, Niagara & Toronto Railway Company is planning to build an electric line from St. Catharines, Ont., to Fort Erie, Ont. Much sand and other products would be used on the contract.

BALTIMORE.

Baltimore, Md., April 18.—With more work going on in Baltimore and the adjacent territory than since the time following the big fire of 1904, which destroyed the business section of the city, there has been no improvement in the local cement market and the same old story of the dealers fighting among themselves has come to the front again. It seems a hard matter for local dealers to work in harmony and as a result profits on the different products are very small and an immense amount of business has to be done before scarcely any money is made.

Harry P. Boyd, secretary and treasurer of the National Building Supply Company, says there is no change in the valley prices and the market is badly cut up. "There is a large demand for cement, and we are getting plenty of good orders which keep us busy, but, as I have said before, there is a limited profit which makes the situation bad. For several months the cutting of prices by the smaller dealers has caused a small margin of profit to everybody, and as a result Baltimore dealers continually work at a disadvantage. There does not seem to be any change of conditions in sight." Mr. Boyd stated that the only way Baltimore dealers will ever be able to make the business a success will be to form some plan of organization and make their specified prices. After the prices have been made the dealers should stick to them and in the end there would be some chance of making money.

One of the most interesting contracts awarded in this city recently was that of the new Union Station of the Pennsylvania Railroad Company. The building will be constructed of concrete, steel and granite. The granite will be the same kind used in the new Pennsylvania terminal in New York City. The contract was awarded to J. Henry Miller of this city.

One of the most interesting bits of news to local cement men is the announcement made by officials of the Tidewater Portland Cement Company that work would be started immediately on a new plant for that concern at Union Bridge, Md., forty-five miles west of Baltimore on the Western Maryland railroad. The company has an organized capital stock of \$4,000,000 and a bond issue of \$1,750,000.

Extensive deposits of limestone and shale have been found contiguous to the plant in the western part of the state and the company has plans for an immense industry. To show the stock and bondholders of the company the new plant and site for the large additions the officials will run a special train from here on April 23. The train will consist of eight Pullman cars and the guests will inspect the plant, after which they will return to the city in the evening.

The buildings will be of fireproof construction. The main crusher will be 76'x74', the kiln 224'x122', stone storage 17'x76', raw mill 96'x60', coal mill 96'x50', stock house 256'x144', packing house 114'x64', power house 128'x60', coal storage 80'x64', clinker mill and gypsum house 144'x60', and boiler house 128'x48'. Other buildings will include machine, carpenter and blacksmith shops, storage houses and a number of other smaller buildings. The machinery will include crushers, pulverizer and kilns. The capacity of the plant will be 2,500 barrels of gray Portland cement and 500 barrels of white Portland cement.

The company will also market hydrated lime.

C. C. Kritzer, of the Kritzer Company, of Chicago, manufacturers of hydrating machinery, has been in charge of the erection of the plant, which will use his system of hydrating. It will have a capacity of 800 barrels per day. The plant is practically ready to commence operations now.

CHICAGO

Chicago, April 21.—Not for years have such fine weather conditions prevailed as this city has experienced since the beginning of March. Not in the recollection of the oldest contractors have building operations opened as early as this year. The demand for all building material has been surprisingly large in March and this month, which many observant contractors predict will continue through the coming season and late into the fall. Cement manufacturers are optimistic in their feeling and can see no end to the great demand seemingly coming from all quarters as never before. Shipments were exceedingly heavy the last two months. Stocks in the western states this year are estimated conservatively in round numbers one million barrels less than last year at this time, while production this year has been decidedly greater. While the capacity of mills has been materially increased, and are running to their full limit, they are not able to supply the demand without drawing on their diminished stock. These conditions inevitably forced advances in the price of cement since January and a further advance is scheduled to take place before long. This is based on the fact of largely increased building operations; on improvement work of railroads which is going on more extensively than was contemplated last year, and public improvements by municipalities, states and federal government. The belief is general and based on unmistakable indications that the consumption of cement this year will be enormous compared to previous yearly records. Sand and gravel producers are getting better prices this spring and feel complacent over the practical certainty of facing one of the busiest building seasons Chicago has seen in years.

"Heavy shipments and an unusual demand for cement at advanced prices," said B. F. Affleck, sales manager of the Universal Portland Cement Company, "have been the feature of the market for the past month. These advanced prices rule in Chicago, throughout Illinois, Wisconsin, Indiana, in fact from Pennsylvania east, covering the entire northwest. Mills with double the capacity of a year ago have difficulty in supplying the demand as promptly as last year. A further advance is expected in prices and seems inevitable. We are inclined to believe the coming season will be the most active seen in Chicago for several years. The outlook is of the brightest and conditions the most satisfactory that have existed in the trade for some time."

Gold Williams, Chicago representative of the Marquette Cement Manufacturing Company, said: "March was one of the best months we have had for years and this month is a continuance of the same excellent conditions. Prices have been advancing steadily since January and a further advance is shortly expected. The demand for cement never was so great as this year, shipments are heavy and May and June promise great things. Stocks throughout the West are lower than last year this time, while production has been decidedly greater."

D. Richter, who one month ago was given the management of the western branch of the Alpha Portland Cement Company, said: "Business has been rushing the last six weeks and shows no signs of quieting down. The demand for cement in March was extraordinary. Fine weather conditions such as Chicago has not seen in twenty years had something to do with the great quantity of cement used here last month, because building operations commenced at least forty-five days earlier than in past years. Indications are that the greatest of activity will prevail in building lines. Mills are running full capacity everywhere and prices which have been advancing since the forepart of the year will not remain stationary. Prospects are indeed brighter for this year than it was reasonable to expect."

George W. De Smet, distributor of Vulcanite Portland cement, said the cement trade was in a flourishing condition in Chicago and in the West. "Prices," he continued, "are advancing and will continue to advance it seems, while the demand for cement has been extraordinary this spring. Shipments are heavy and stocks everywhere are lower than they were last year at this time. Many mills throughout the country have doubled their capacity the last eight months, but, running full time, they have difficulty keeping up with the demand. Building operations in Chicago this year promise to exceed 1909 in good round numbers."

The Sandusky Portland Cement Company did a

rousing business last March. A. E. Mollan, its representative here, stated that the Chicago office will be closed the 30th of this month and this company will practically withdraw from the Chicago market. He has sent in his resignation. He will enter upon his new field May 1 with the Chicago Portland Cement Company selling Chicago "AA" cement, having been given the territory of Illinois and Wisconsin.

E. J. Winslow of the Hydrolithic Cement Company was in the midst of moving his offices from the sixth to more commodious quarters on the second floor of the Western Union Building, but found time to tell the Rock Products man that increased business this year forced him to undergo this unpleasant procedure, but would bring order out of chaos by the end of this week. "Business," he said, "was exceptionally brisk March and this month, the demand heavier than I have known for some time at this season, and am making preparations to take care of the heavy business the coming season which indications point will continue to the close of fall."

"Shipments have been heavy," said John G. Evans, of the Atlas Portland Cement Company, "and the demand exceedingly large. Conditions in the cement trade are in excellent shape and everything looks exceedingly bright. Prices have been advancing steadily since January and it is expected that they will not remain where they are long, another rise seems inevitable. There seems to be no cutting or slashing done this year. We shall put in lots of Atlas cement in Chicago."

J. U. C. McDaniel, traffic manager of the Chicago Portland Cement Company, looked contented and happy when he said: "We have never had a greater demand for cement than last month and this. If shipments keep up as they have been doing, and there are no indications to the contrary, this year will stand out as a banner year. Prices are advancing. Mills are not able to supply the demand without drawing on their old stock. Conditions were never better in the cement field. Prices with all the advances since January show a strong upward tendency."

E. L. Cox, general sales agent of the German-American Portland Cement Works, felt happy and buoyant in spirits over the conditions in the trade. He said: "Everything looks rosy and better than ever before. The demand for cement last month and this has really been surprisingly large, shipments heavy and prices advancing."

J. B. Tuthill, president of the Tuthill Building Material Company, spoke of the exceptional early opening of building operations this year and the large number of homes and flat buildings that have been put up in Chicago this spring. "The number of these buildings," he said, "greatly exceeds that of any year for the same period in my recollection on the south side. A very large percentage of these are two and three flat buildings and practically all their foundations are of concrete. Our business has been rushing during March and April and all indications point to an exceedingly busy season with no let up till cold weather sets in. All building material is higher and in greater demand than last year."

M. E. Van Frank, secretary of the Standard Material Company, its yard located half a mile west of Wentworth Avenue at the corner of 66th Street and Lowe Avenue, said: "The opening of the building season has been much earlier and far more active than Chicago has known in ten, I might say twenty years, and still remain within the boundaries of truth. The class and character of buildings in our neighborhood put up this spring are homes, to a great extent consisting of two and three flats, the owner living in the first flat and renting the upper flats. These men are working in the various trades, owned their lots for several years and with accumulated savings have built this spring. There is no end to this sort of building, showing prosperity has reached the middle and laboring classes. This condition has made our business in March the best we have ever seen and the coming season promises to be very active. Prices for all building material is higher than last year, and the demand greater and increasing."

W. O. Heitman, president of the Union Coal, Lime and Cement Company, reported a decidedly greater number of buildings going up within a radius of two miles of Ashland Avenue and 59th Street and because of the fine weather conditions this spring not remembered by old residents of Chicago of ever having seen their equal, building operations set in very early. "The fact is, we have done a very good business since March and it seems that the demand for all kinds of building material will show no let up the coming season. The only thing we could wish for, in our territory on the south side, is more uniform prices."

Business for March was reported as surprisingly good at the 59th Street and Loomis Boulevard yard

of the Chicago Contractors' Supply Company. It was said that everything pointed to great activity throughout the coming season and busy times could be expected without any halting. Early and late building this year will long be remembered. Prices are higher and demand greater than last year.

The Lake Building Material Company, with its office and yard at 2144 West 47th Street, started in business last December. Its officers are Matt A. Mueller, president; J. Golombiewski, treasurer, and E. Withall, secretary, all live wires and men well known and well liked by contractors and builders, especially in the south division of the city. Their yard is a large one, occupying several acres of ground. It is the old site of a brick plant of former years. It has two switch tracks running into it, one from the Indiana Harbor Belt Railway and one from the Chicago Junction Railway. Another switch track is contemplated. The company carries and handles a complete line of builders' supplies, including cement, lime, plaster, gravel, sand and brick. It has done a rushing business last March, taxed their teams to the utmost this month delivering material to jobs, and expects to keep as busy, as contractors say they have all the work they can handle up to the last of September. E. Withall, its secretary, said: "Nothing can stop the rush of business this year."

Thos. J. Hruba, manager of the Ideal Manufacturing Company on West Twenty-second Street, about one-quarter of a mile west of Ashland Avenue, said: "We have done an exceedingly good business in March and this month's business has so far been as active as last month. A great many buildings have been going up this year in this territory, say within a radius of two miles, and we have built our concrete chimneys for them. Public improvements also have been greater in this territory than last year, and our concrete sewer and catch basin covers have been in greater demand than we have been able to supply. Everything looks bright and prosperous."

James E. Lill spoke of the early opening of the building season and the great number of flat buildings, ranging from two to sixteen flats each, which had been put up in the territory covering Edgewater, Rogers and Irving Parks, Winetka and northward, this spring. He said: "I had a very busy month in March. There is a little lull at present, probably for the reason that spring building is practically over and fall building has not yet commenced. By May we will be rushed again and this busy condition promises to keep up till late in the fall. Practically all the foundations in buildings this year are of concrete. All building material is higher than six months ago and indications are it will go higher still, especially cement. Contractors and builders don't grumble at this. They have realized that prices were too low. The outlook is exceedingly bright. There is much ground being broken this month for new buildings on the north side."

M. A. Staley, of the M. A. Staley Company, reported that business last month had been better than the same month in the past ten years; that prices were higher for all building material than last year and that by reason of a good fellowship existing among dealers material was sold at a fair profit, no undue cutting and slashing of prices existing in the trade. At their northwest yard at Norwood Park they are getting higher prices than at the yard at Cornelia Avenue because of the difficulty of hauling material to jobs. It is all open prairie country there and very bad roads. "All this open prairie," he said with a smile, "will be built up solid in a short while at the rate they are building there this year. It beats all previous records. Flat buildings from six to thirty-six flats each; two flat buildings for homes of builders, is the character of structures built this season. There will be no let up to the rush till late in the fall."

J. M. Bower, manager of the Waukesha Lime and Stone Company, said: "All building material commands a higher price than last year and the demand, for it is greater than in many past years. Building operations within a radius of two miles of this yard, corner Devon Avenue and Sheridan Road, and our yard at Central Park Avenue and Bloomingdale Road are more extensive than last year. Buildings in these districts are springing up everywhere and it looks as if this activity in building lines will continue during the coming season. Conditions in the trade have not been better in years and the outlook is simply great. Our teams last March were never as busy in past years delivering material to jobs."

Alfred Frerk, at the Henry Frerk yard, at 3135 Belmont Avenue, said: "It has been a surprise to everybody, seeing the number of buildings going up this spring in the northwestern division of Chicago. Flat buildings large and small, homes for people owning the lots they are building on, stores and factories. We have had a remarkably rushing busi-

ness in March and expect to keep up this gait till late in the fall. All building material is higher than last season. It seems the demand is increasing steadily, contractors and builders are overcrowded with work, and still the speculative feature in all this activity is absent. It is a healthy condition brought about by prosperity having reached the middle and laboring classes. Things do look good without a doubt."

A. J. Druecker, of N. J. Druecker & Co., whose yard is located at 2836 Artesian Avenue, said: "Things are booming in building lines in our northwestern section of the city. Two, three and six flat buildings are going up everywhere in this territory and all have concrete foundations, which accounts for the heavy demand of cement and all other building material. Prices are higher and indications point to a further advance. Contractors and builders feeling that low prices are things of the past are closing contracts for the coming season. There is a greater activity in building circles than has been experienced here for many years. This year promises great things. We had a busier month last March than we have had in ten years and I cannot see any chance for business slowing up till after next fall. The fact is we have been busy all of last winter. Prospects undoubtedly look very good."

P. T. Britt, manager of the J. J. Croake Company yard at 2929 West Fullerton Avenue, said: "We have been very busy last March and prospects are good for the greatest of activity in building lines the coming season. Prices for all building material are higher than last season, but this condition does not seem to halt operations of contractors or builders. There is a surprisingly large number of flat buildings and homes going up in this territory this year. Foundations put in in these new buildings are nearly all of concrete. We have had an active demand for the concrete building blocks we manufacture. We have taken more contracts this year for houses from foundation to the complete structure, of our blocks, than we have closed in the last two years. We also find great demand for our ornamental concrete stone and garden statuary. Everything looks very bright this year."

A. H. Halleman, president of the Templeton Lime Company, with yards at Homan and Grand Avenues, and the Templeton Lime and Stone Company, with quarries at Templeton, Wis., said: "March was the busiest month we have had in several years at both ends. We worked our quarries to full capacity and were obliged to get extra teams to haul material from our yard there to the jobs. Prices are up from two years ago and the demand for building material is the most active we have seen for a long period. There is much building going on on the west side, and this promises to keep on actively till late in the fall. Two, three, six and twelve flat building are erected in this section everywhere. This year undoubtedly promises to be one of the best Chicago has seen since the great fire."

Morris Koch, secretary and treasurer of the Mar-nane-Farley Co., whose yard is at North Fortieth Avenue and Kinzie Street, said: "We were very busy last March and are experiencing no let up this month. All building material is higher than last season, and the demand at the same time greater. There has been a remarkable amount of building done this spring, which from indications promises to keep up till late fall. An eastern syndicate is putting up one hundred cottages in a new subdivision and these cottages are sold as fast as completed. This is the only speculative building I know of."

Present conditions are looked upon as exceedingly bright for the coming season at the Brownell Improvement Company. For instance, last year this company in April crushed 15,000 cubic yards of crushed stone; this month the output has been 75,000 cubic yards of this material. Railroads throughout the country are pushing improvement work with all possible energy and the work is of the most extensive character. The Lake Shore, the Ft. Wayne, the Pan Handle and the Santa Fe railroads a few weeks ago all gave this company big orders to push with all possible haste concrete work in contemplation along their lines. It has a contract with the Lake Shore road to furnish forty cars per day of crushed stone to be used for ballasting. The capacity of the Brownell Improvement Company this year for crushing stone has been increased from 1,500 to 3,500 cubic yards per day, and the plant with this more than doubled capacity finds it difficult even now to supply the demand.

The senior class of the Rose Polytechnic College, Terre Haute, Ind., here on its annual industrial inspection, visited the Buffington Cement Works, the south branch of the Illinois Steel Company and the Grand Crossing grade separation works today.

Tomorrow the students will take a trip down the drainage canal to Lockport. The inspection trip will be brought to a close tomorrow evening, when they will be tendered a farewell banquet by the Engineers' Club.

C. B. Sheffer, president and manager of the Garden City Sand Company, spoke optimistically of the excellent conditions in all building lines in Chicago. "Building operations," he said, "look as if they would exceed those of last year. They certainly will if business keeps on the way it has been going March and this month. There is a great demand for all material and prices are firm. For some material better prices rule than last year. The demand for our 'Stone-Kote' has been surprisingly large this spring. Last year we finished 225 houses with Stone-Kote in Chicago; this year that number may look small by comparison. Prospects are indeed very bright for an exceedingly busy year."

The Artesian Stone & Lime Works Company is putting their fleet of boats in commission now to handle their product. It has erected a scow loading station on the Sanitary Canal at Summit for transferring its stone; an unloading station at Thirty-seventh and Iron Streets, with conveying machinery, and a station at the North Branch, Barry Avenue and the river. It has added crushers and large sets of crushing rolls at its quarries at Grand and Campbell Avenues and McCook, Ill. All this has been done to meet the increasing demand this year.

H. M. Capron, manager of the Chicago Builders' Specialties Company, said: "We have been sorely taxed during the past six weeks filling orders for concrete machinery and contractors' equipments, the demand for these were greater by far than last year, and everything indicates there will be no letup this season. The business outlook promises well."

T. P. Henderson, secretary and treasurer of the Chicago Union Lime Works Company, reported business fine in March and April. He said: "Prices are good, demand is heavy, building operations this year are on a greater scale than ever before, and everything looks good. You can say that we are happy."

E. P. Bostler, office manager of the Rockwell Lime Company, at 1223 Rockwell Avenue, said: "Business has been unusually good the last two months. Shipments are heavy and we could ship a great deal more lime if we could get it out, but we are manufacturing now up to the limit. We have three kilns in full operation at our quarries in Manitowoc and are erecting a fourth one which will be in operation in June. Prices are steady and firm. The unusual activity in building operations in this neighborhood creates a very active demand in all building materials."

At the offices of the P. M. Richardson Sand Company was reported that they were fairly busy in March and this month. All indications, it was said, however, pointed to a very active season, which does not open till May 1. Prices were said to be higher, advancing and firm.

C. H. Brand, president of the Atwood-Davis Sand Company, said: "Conditions are good all around. Prices are better and having an upward tendency. The demand for sand and gravel is great this year. We have received large orders within the last two weeks from railroad companies, who seem to be pushing their improvement work with vigor. Everyone feels that the coming season will be an extraordinarily active one."

J. S. Putney, of the Lake Shore Sand Company, spoke of the many public improvements Chicago will inaugurate this season and which will require vast quantities of sand and gravel. He said: "Paving of streets will commence in about two weeks and 130 to 140 miles of pavement will be laid before next winter; many miles of sewer will be laid, as also many miles of street railway track will be relaid, all tending towards a very active demand for sand. We have had a big March. There is a letup of business just at present, but the lull will not last beyond May 1, when the season really opens. Prices are firm and it is believed will register an advance before long."

P. M. Lewis, secretary of the American Sand & Gravel Company, said: "In all our business life we have never had such rushing business as last March. We simply could not supply the demand. This month we are catching up, but we are exceedingly busy meeting the demand for sand. Prices are better than last year and firmer, indicating an upward tendency. We have all taken the stand of sticking to these better prices or letting contracts go, but we have not lost any contracts by this course. The fact is, our season does not actually open till June as a rule, and when that time comes there will be 'doings' sure enough."

MILWAUKEE AND WISCONSIN.

Milwaukee, Wis., April 20.—With the continued pleasant weather building operations throughout Wisconsin are booming. Manufacturers and jobbers of building material of every variety report great activity in their respective lines and every indication points towards a most successful season. During the first two months of the year the amount of building done was below that of the same period of 1909, but in March operations leaped forward until the record for 1909 was all but beaten. April has been a splendid month up to date and the material men are all preparing for an unusually heavy season.

The Frederick E. Little Engineering Company of Fond du Lac, has been commissioned to prepare plans for a modern reinforced concrete factory building to be erected by the Gardner Machine Company, of Beloit. The new building will be 100'x200', 40'x100' of which will be two stories in height. The second story will be used for offices and drafting rooms.

The Janesville Sand & Gravel Company, formerly the Janesville Cement Shingle Company, has increased its capital stock from \$10,000 to \$25,000 and has purchased a new sand and gravel pit of fifteen acres, well located for handling the material.

The Janesville Granite, Brick & Stone Company has accepted offers from Oklahoma City, Okla., and will remove its plant to that city.

E. Knudson, who recently purchased a large gravel pit near Rice Lake from the Crisler-Everts Lumber Company, is erecting several buildings and will install improved machinery for the manufacture of concrete blocks. The city of Rice Lake will do a large amount of sewer work during the summer and will probably use concrete pipe.

C. E. Reed, of Burlington, has purchased the interests of W. G. Rasch, George W. Waller and C. W. Diener, in the Cement Products Company of that city and is now sole proprietor of the concern. He will manufacture cement blocks, fence posts and various other articles.

The Wisconsin railroad commission has issued an order directing the Chicago & Northwestern Railroad Company to construct a spur track to the quarries and kilns of the Eden Independent Lime Company, near Fond du Lac. Besides the Eden company there are two others, the Union Lime Company and Nast Brothers Lime Company, all interested in track accommodations at their quarries and kilns near Fond du Lac.

The Columbia Silica Company has completed the work of installing a new conveyor in their plant at Portage and also a new 150 H.P. steam boiler, and has commenced the season's operations.

The Cook & Brown Company, of Oshkosh, has had a steam shovel shipped into Omro to be used in their pit near Lake Butte des Morts.

The Tesco Products Company, of Milwaukee, has filed its articles of incorporation with the secretary of state. The capital stock is \$100,000 and the incorporators are Frederick Polltworth, F. D. Wolfgram and Albion R. Noite.

The Hydraulic Stone & Brick Company, of West Bend, of which M. H. Evans, of St. Paul, was president, and C. H. Morton, of West Bend, manager, has been sold to John Lange and a party of Fond du Lac contractors, who have already taken possession.

The Chicago & Northwestern railroad is remodeling its stone crushing plant at Quarry, Ia.

According to the reports of experts, who had been engaged by brick manufacturers to investigate the blue clay deposits found in Douglas county along the south shore of Lake Superior between Wisconsin Point and the Amnicon river, a distance of about five miles, are admirable for the manufacture of pottery, tiling, sewer pipe, roofing, fire and all kinds of brick.

The Badger Building Supply Company, of Milwaukee, with a capital stock of \$25,000, has filed articles of incorporation with the secretary of state. The incorporators are George A. West, Louis Mane gold and Joseph O'Laughlin.

John Buehler and Will Brancel have formed a partnership and will establish a concrete manufacturing plant at Briggsville, Wis. The firm already has contracts for the erection of six cement block silos in addition to other work.

The Carey Concrete Brick Company, of Grand Rapids, Mich., has been reorganized and the name changed to the Carey Concrete Block Company. During the past year the firm engaged in the manufacture of concrete brick only, but this season it is planned to enter the concrete block field as well and the capital of the concern has been enlarged so as to permit of the purchase of new equipment.

The Waukesha Lime & Cement Company is adding considerable equipment to its plant at Waukesha, Wis., and has recently placed an order for crushing and electrical apparatus.

TOLEDO AND NORTHWESTERN OHIO.

Toledo, Ohio, April 19.—The fine spring weather of March and April has had its effect on building operations in Toledo and northwestern Ohio and at this writing general construction activity is about where the business depression of two years ago left it. The building inspection department of Toledo reports an increase of over 100 per cent for March as compared with a year ago, and up to April 15th the increase is even larger as compared with 1909. Rural districts are forging to the front and reports from several centers in this part of the state vary as to increase from 50 to 200 per cent. Some of the most pessimistic hold that the fine weather started activity earlier than usual and that the sum total for the year will not be greatly in excess of a year ago. This, however, seems unduly pessimistic and the overwhelming consensus of opinion is that 1910 will be the most active year in all lines of structural activity since 1906.

In Toledo the volume of business consists not in a few large contracts but in a number of fair-sized operations. The large projects under consideration is a new store for Tiedtke Brothers, plans for which were made by Architect George S. Mills and the general contract for which has been awarded to the H. J. Spieker Company; a large addition for the Toledo Metal Wheel Company, several new buildings for the Overland Automobile Company and an entire new plant for the Toledo Scale Company.

Several other structures of equal size are receiving attention from architects but they will not be of concrete other than for foundations.

Activity in municipal lines is opening nicely, contracts having already been awarded for a large number of pavements, the largest of which has been let to the Asphalt Block Pavement Company. This contract, which amounts to \$75,000, calls for the paving of Broadway with asphalt blocks on concrete foundations. Sewer work has not opened up to any great extent as yet, contracts to date consisting of lateral and tributary lines and have been of minor importance.

Throughout the state a large number of municipal improvements are contemplated, the most important of which is a combined water, power and light plant for the city of Defiance. Plans for this improvement are being made by Engineers Riggs and Sherman, of Toledo.

The waterworks plant of Kenton has been condemned by the state inspector of buildings and bonds are shortly to be sold for an entire new plant. The new concrete reservoirs which are to be built by the city will probably be built in conjunction with the new plant, instead of separately, as originally intended.

The greatest activity announced in cement lines thus far is that of the Peoples Portland Cement Company, of Spokane, Wash., which was organized some time ago for the purpose of taking over the Lake Shore Portland Cement Company, of Sandusky. G. A. Hogue, of Toledo, and a leading member of the board of directors, states that at a recent meeting of his board unanimous decision was reached to immediately begin operations on the Sandusky plant, which was only partially completed when acquired by the present organization. In addition to this plant, the company owns several hundred acres of workable coal lands in southern Ohio, 1,000 acres of marl land near Castalia and Bay City, near Sandusky, as well as several hundred acres of similar land near Spokane, Wash. Mr. Hogue further states that a site for the Spokane plant has just been decided upon and that before the close of the year the two plants will be running with an annual capacity of 250,000 barrels of cement. This output can be increased from time to time, as business demands, without much additional expense, as the original plans of both plants were drafted with this in mind.

Residents of Manchester, Mich., about thirty-five miles north of this city, are greatly interested in numerous stories which have recently reached their ears relative to several parties taking options on the partially dismantled plant of the Toledo Portland Cement company of that city. Some months ago a company was formed to erect a mammoth cement plant there, and after spending between \$50,000 and \$75,000 in buildings and machinery, the company went broke and subsequently the steel frame of one large building partially constructed was removed and sold, as well as much of the machinery which had already been delivered. Since that time several attempts have been made to re-finance the company, and residents of Manchester are interested in the efforts, as the city, consisting of 1,000 people, subscribed approximately \$35,000 for the plant.

Toledo's newest industry is the Toledo Silica

Sand Company, which has just been organized by Charles A. Albert, of Pittsburgh, who for many years was connected with the Dunbar Sand Manufacturing Company, of Pittsburgh. The new industry will start with \$20,000, all of which has been paid in, and will be located at Silica, near Toledo, on the Toledo, Angola & Western railroad, a short railroad built by James J. Robison, of Toledo, for the purpose of connecting the Silica stone quarries with the Lake Shore railroad.

The Superior Builders' Supply Company, organized late last fall by A. B. Luten, local sales agent for the Metropolitan Paving Brick Company, and W. F. Brown, local manager for the Philip Carey Company, has purchased the business of the Peoples' Builders' Supply Company, located on Water Street, near the Cherry Street bridge, and these two businesses are shortly, according to Claude Smith, city manager of the Superior Builders' Supply Company, to be taken over by the Woodville Lime & Cement Company, which owns and operates large lime kilns at Woodville, Ohio, but which has Toledo as its headquarters. The Peoples' Builders' Supply Company was organized a few years ago by Fred Boice, who for many years had been connected with the Toledo Builders' Supply Company, and the Woodville Lime & Cement Company has been intending to enter the local field for some time past, although it has not expected to take it up actively for a couple of years yet.

Toledo's sand sucker fleet was tied up with a strike early in April, brought about through a demand for more wages. Notices of the intended demand for more wages were sent the employers several months ago, and when a strike was finally called it was with the best of feeling on both sides. The matter was shortly adjusted to the apparent satisfaction of both sides. The demand for sand was heavy during March and although heavy stocks had been carried over the winter, these were quickly absorbed and a steady demand has existed ever since; a demand which is almost double that of the same period a year ago.

Otto Augsbach, president of the Ohio Builders' Supply Company, says his company has never had such a heavy demand for cement building blocks as this spring and that never in his experience have so many been used in high grade structures as at the present time.

Peter Degnan, president of the Toledo Builders' Supply Company, is smiling over business these days and says that it looks the best it has to him since the spring of 1906. He says the call for Crescens Hard Wall Plaster is heavy and that dealers are showing a liberal tendency to stock up heavily.

NASHVILLE AND THE SOUTHEAST.

Nashville, Tenn., April 16.—Business is fairly good at this center. The wet weather for the last ten days has interrupted outdoor work a trifle but the clouds are now clearing.

Hoover & Co., plastering contractors and building supply dealers at 810 Fourth Avenue N., say that business is very active with their firm. They will do the plastering work on the large Y. M. C. A. Building and the plastering and concrete work on the Y. W. C. A. Building. They have been doing the plastering on the new Hermitage Hotel. They report a good business on cement and lime.

The Cumberland Valley Company, 413 Stahlman Building, is handling sand and special building products locally and in out of town territory and are quite busy.

Rock Products' correspondent visited the site of the Atlas Paint Company's new factory in North Nashville near the river. It is going up right along and the factory will be making mortar colors by summer.

The Nashville Builders' Supply Company, at the foot of Church Street, is active at this season and is furnishing the material for a number of residences and business structures.

Quinn and Ellis and John Broderick were the successful bidders on sewer contracts let by the Board of Public Works several days ago.

The Nashville Bridge Company has completed a reinforced concrete observation tower for the United States Government at the National Military Park, at Vicksburg, Miss. The same company has completed at the Vicksburg Park an obelisk concrete foundation on which the government will erect a memorial to the United States navy. This will be 202 feet high and the foundation is 45 feet square and 16 feet high.

Jesse Allen, at Burns, Tenn., is operating a lime kiln and shipping the product into Nashville and neighboring territory.

W. T. Hardison & Co., dealers in builders' sup-

plies on First Avenue S., reports business opening up slowly. They handle cements, lime, etc.

At Clarksville, F. L. Smith is handling building material, plaster, cement, etc. He reports trade good the last few weeks.

The Forbes Manufacturing Company at Hopkinsville, Ky., was visited several days ago by Rock Products' correspondent. This firm is now erecting a new warehouse and is having a good trade in building materials. It does a large departmental business. An \$80,000 high school is to be erected in Hopkinsville in the near future.

The Hickman Concrete Company, of which J. T. Stephens is manager, was seen at Hickman, Ky. Mr. Stephens says that there is considerable building this year in Hickman. He has erected an elegant concrete block house for himself on one of the prominent hills of that hilly town and his company is doing much paving work over that section and some building work. Mr. Stephens also has the honor to be postmaster at Hickman, having been originally appointed during President Garfield's administration.

MEMPHIS AND THE SOUTHWEST.

Memphis, Tenn., April 16.—The building reports show a gain of \$45,000 last month over March, 1909. April appears to be making a good showing also. The totals were \$442,257 against \$376,799. Reinforced concrete and brick buildings were valued at \$30,450. The cement market here is reported a trifle stronger by operators. The sand and lime business is very good. Continued favor is shown for concrete warehouses and paving and municipal work is of a very promising character.

The Cubbins Lime & Cement Company said: "The cement trade is very good and prices have advanced about 20 cents. We find the plaster trade on U. S. gypsum product good. We have been furnishing considerable Portland cement for the contract of the Central Bank & Trust Company Building and are also furnishing a lot of sewer pipe for the City Park Commission. We are furnishing some of the material on the concrete Public Comfort station being erected in Court Square, Memphis."

The Bartholomew Roofing Company, of Memphis, has secured the contract to put on the roof on the million dollar Turner-Hartwell Docking Company Building at Mobile, Ala. The Virginia Bridge & Iron Company, of Memphis, will furnish the steel enforcements for the building.

The Clark Concrete Company, Goodwyn Institute, are doing the concrete work on a garage building at Third and Madison Streets. It is quite a large structure, the upper floors to be used for separate purposes.

The International Sugar Feed Company, of which M. W. Savage, of Minneapolis, Minn., is president, will erect a large concrete factory building and warehouse here. The building will be absolutely fireproof and it is hoped to have the same in commission by August. I. P. P. Van Vleet, Chas. F. Shepard and other local parties are identified with the enterprise.

The Mississippi Alabama Burial Vault Company has been incorporated at Meridian, Miss., with a capital stock of \$15,000. The incorporators are: J. E. Wright, H. C. Smith and others.

The Leaf River Gravel Company, of Hattiesburg, Miss., has been incorporated with \$50,000 capital stock by E. J. Mitchell, S. E. Rogers and others.

PHILADELPHIA.

Philadelphia, Pa., April 19.—The cement market is opening up in good shape in this vicinity, and the outlook for the spring trade is very encouraging. The architects continue to be busy making plans for large dwelling operations and flat houses in which concrete work will be used extensively.

H. M. Fetter, Second Vice-President of the William G. Hartraup Cement Company, reports that the business is showing signs of improvement and that they are shipping big orders for this time of the year.

John R. Wiggins & Co. are preparing to build a police station, fire station and patrol garage at Nos. 319 to 325 Race Street for the city, that is estimated to cost \$100,000.

John T. Windrim and Cope & Stewardson have been chosen as the architects by the trustees of Thomas W. Evans Museum to prepare plans for the proposed building to be erected at Fortieth and Spruce Streets for the Evans College and Museum. There will be about \$400,000 expended in the erection of these buildings.

J. E. & A. L. Pennock are preparing to build a large reinforced concrete coal pocket 58'x170' at the southeast corner of Ninth and Thompson Streets, to cost about \$68,000.

LOUISVILLE.

Louisville, Ky., April 15.—The favorable conditions in the building and allied industries reported last month are still to be found at this time, although the first rush of the spring work is over. The fine weather all during March brought out a lot of work which ordinarily would have been done later, and so, although everybody is still busy and there are plenty of prospects in sight, builders are not crowded with work as much as they were a month ago.

The report of the Building Inspector for March indicated active building operations, although comparison with March, 1909, showed a slight falling off. Last month 298 permits were issued, representing a total outlay of \$336,000, while for March, 1909, there were 352 permits, representing \$345,000. Better comparisons were provided by figures for the first quarter, which showed that \$927,000 worth of work was authorized for the first quarter of 1910, as against \$579,000 for the corresponding period last year.

The feature of the past month has been the definite announcement that a fifteen-story office building will be erected at the southeast corner of Fifth and Jefferson Streets by the Caldwell estate. It is expected that this will cost \$750,000. Specifications for the long-delayed Tyler Hotel are now out, and bids will be submitted shortly. Announcement was also made by the Young Men's Christian Association of its plans for the erection of a building to cost \$250,000, but this will not be begun immediately.

The improved condition of cement, which was noted last month, continues to be a topic of favorable comment. Several advances have been scored of late, and it is believed by the manufacturers that this will be a good year for the material, with rises being recorded continually. It will take a prosperous season, however, to make up for the losses suffered by many last year. Manufacturers of sewer pipe, brick, tiling and fire brick are all busy, while those handling roofing, wall plaster and similar lines report conditions as beyond criticism.

The Kosmos Portland Cement Company reported that it had all the orders it could take care of, and that prices were advancing steadily. No very large orders have been received, but there is a good run of business that is impressive by its volume. Prospects are good, and it is believed that prices will advance all through the year. There is much building proposed for this entire section, a feature which is encouraging officers of the company considerably.

J. B. Speed & Co. have had to turn down orders lately on account of being so rushed that the mills could not take care of the demand. Prices have stiffened, and cement is now quoted at \$1.35 f. o. b. Louisville, as compared with much lower prices last year. A lot of contracts calling for from 3,000 to 10,000 barrels are in the market, and the prospect is for activity all during the year. The sewers are continuing to supply a lot of work, a contract requiring 6,000 barrels having been let to C. T. McCracken & Co. last week.

The Utica Lime Company is now out of existence and the official name of the company is the Union Cement & Lime Company. The two corporations were kept distinct for several years, the Union handling the manufacturing end of the business and the Utica the selling. This arrangement is no longer necessary, and the change was accordingly made. George F. Meldrum, treasurer of the company, said that the demand for Lehigh cement is good, and that prospects are encouraging for a big season.

The National Concrete Construction Company has been given the contract for the reinforced concrete skeleton of the Business Woman's Club, which will cost \$85,000. Gray & Hawes are the architects. The specifications for new buildings are rather slow in coming out, said J. B. Ohligschlager, but there is a lot of work in sight. They are keeping busy on a lot of small jobs in addition to the Business Woman's contract, which they will start on in a short time.

The National Roofing & Supply Company is keeping busy, but is not rushed so much as last month. Business is good for this time of the year, and prospects are unusually good. The working force was rushed to the limit during March.

Several good contracts have been landed lately by the Central Concrete Construction Company, which is doing a \$4,000 job at the new residence of C. T. Ballard at Glenview. This covers the reinforced floors only. The company also has the contract for the concrete floors of the Prince Wells garage, and is building some fancy concrete benches for the Country Club.

The Ohio River Sand Company is rapidly pushing the work on its new office building at Brook Street

and the river, and the foundation is now laid. John H. Settle said that business is pretty fair, and that the sewers are taking a good deal of sand and gravel. Building prospects are rather uncertain, he said, but ought to be pretty good.

Lots of work has been done recently by the Kentucky Wall Plaster Company, which is advertising its "Diamond" brand to good advantage, in the daily newspapers. Alderman B. J. Campbell, of that company, has about got used to his job now.

S. F. Troxell said that he is busy with roofing and steam pipe covering, and that there is lots of work in his line at present. Prospects are good, and there is considerable work out of town that he is figuring on. Things have slowed up a little locally, he added, but there is no reason to complain of conditions.

K. W. Grahn, president of the Louisville Fire Brick Company, said that business is fair, and could be better or worse easily. The southern iron furnaces have accumulated large stocks which must be worked off, and this has quieted the demand somewhat, but the outlook is good for an active year.

John Bacon Hutchings is the local architect for the new skyscraper at Fifth and Jefferson Streets. Preliminary plans only have been drawn, and Mr. Hutchings will coöperate with a New York architect on the details of the building. Three local banks are to occupy the first floor of the structure.

McDonald & Dodd, who have given out the specifications for the new Tyler Hotel, have announced that they will complete specifications for the new addition to the Weissinger-Gaulbert apartment house in about a month. The building will be nine stories high, and will be of reinforced concrete to a large extent. It will have concrete frame, columns and floors, and will be faced with brick and stone. It will have solid plaster partitions. It will be of standard fireproof construction throughout. It will cost in the neighborhood of \$400,000.

The P. Bannon Sewer Pipe Company is keeping busy with its contracts with the city, and will probably operate its plant at night in order to get out the material. It has several good prospects out in the state, Winchester having decided to spend \$65,000 on a sewerage system and Mount Sterling having awarded a contract for the construction of a \$50,000 system to Paul & Kerschner, of Dayton, Ohio.

The Unit Brick & Tile Company has leased a plant in South Louisville, formerly occupied by the Louisville Spoke & Bending Company, and has spent \$10,000 for machinery. It is preparing to manufacture a concrete brick and tile, the invention of J. A. Sawyer, of Charlotte, N. C. The company has been capitalized at \$50,000. George Long is Vice-President.

The United States Kellastone Company has secured the plant formerly occupied by the Louisville Bolt & Iron Works, and will manufacture a plastic stone devised by E. E. Kallie, of Terre Haute, Ind. A. J. Worsham is in charge of the plant here. It is a branch of the one in Terre Haute. The new material, it is stated, is especially adapted for use in factories and warehouses.

Mark Applegate, of Horse Cave, Ky., is preparing to manufacture brick there, and has purchased a site for a plant. The Patoka Brick & Tile Company, of Huntingburg, Ind., has also been organized for the purpose of manufacturing a building brick, a vitrified brick and an agricultural tile.

Thomas M. French has been appointed Assistant Building Inspector of Louisville, to succeed John A. Piazza, who recently resigned. The appointment was made by Mayor Head.

The Builders' Exchange is considerably interested in the new mechanics' lien law passed at the last session of the Legislature, and to go into effect June 13. Some parts of the law are said to be vague, and a special committee of which E. G. Heartick is chairman was appointed recently for the purpose of investigating and drafting a standard form of notice explaining the measure. A special meeting will be held to hear the report of the committee.

The plans for the improvement of Beargrass Creek, which were referred to in the last issue of Rock Products, are likely to be carried out, a meeting of the Commissioners of Sewerage with property owners interested developing the fact that they are in favor of the scheme. It is intended to build concrete masonry to hold the creek in its channel. This work would cost in the neighborhood of \$1,000,000.

Samuel K. Bland has been appointed receiver for the Southern Building Company, of Louisville. It owes \$30,000, but has contracts which will enable it to meet these liabilities, and the receiver was appointed to help it carry out the contracts.

The Bowling Green White Stone Quarry Company, which has been in the hands of a receiver, has

been reorganized under the same name, except that it is a Kentucky corporation, as the result of a sale of its property by Master Commissioner Speck at Bowling Green this month. The plant was sold to satisfy a judgment in favor of the Columbia Trust Company, of Louisville, and was bid in on behalf of the bondholders for \$33,334. Graeme Macfarlane, a well-known iron man of Louisville, will head the company, which will install a crushing plant and push both the crushed stone and building stone quarried by the company.

The city of Louisville is having a large amount of street work done this year. Contracts for vitrified brick work amounting to \$64,000 have already been let, and contracts for asphalt have been let amounting to \$132,000.

ST. LOUIS.

St. Louis, Mo., April 18.—As the building season opened up early this spring, it is now in full swing, weather conditions having been very favorable. All the leading manufacturers and dealers in building material are doing a large business and state that the outlook is very favorable. While skilled labor is restless and threatening to strike, nothing serious has as yet developed. Prices for cement have advanced slightly, plaster is firm and tending upward and lime is steady. The production of all three staples is heavy, especially of cement. It is reported that overtures for 85,000 barrels have been made to local parties by Kansas producers who are oversold.

Beside heavy building operations, the city of St. Louis is contracting on a large scale for street work (forty-two miles as against twenty-two miles last year) and will invest \$800,000 in work on concrete sewers.

On the east side, there is great activity in building operations and public improvements. The East Side Levee and Drainage Commissioners have adopted the report of President Henry D. Sexton, calling for the expenditure of \$6,500,000 for the diverging of Cahokia Creek to the Mississippi River and the erection of a concrete retaining wall along the levee in East St. Louis from two to ten feet in height.

A. H. Craney, Jr., sales manager cement department, Union Sand & Material Company, states that the demand for Portland cement is large and urgent. The slight advance in cost instead of checking, seems to stimulate sales. Prices are also better in the Kansas district with a heavy demand. The company is enlarging the crushing and drying capacity of the Kansas City plant.

Gordon Willis, of the Hunkins-Willis Lime & Cement Company, says the good outlook with which the season opened early in the spring has been maintained and the prospect ahead is still quite favorable. All the various departments of the company are very busy and they have been obliged to increase their office force.

Secretary Healey, of the Glencoe Lime & Cement Company, was found to be in an optimistic mood, doubtless occasioned by the constantly increasing additions to the order books for lime, cement and other material. He stated that they are firing the first of the series of the Schmatola system gas producer kilns. Also that the foundation of the hydrated lime plant has been completed, the company having adopted the Kritzer system and expect to complete the plant by July. These improvements will place the company in the front rank of fully equipped lime manufacturers of the United States.

The Algonite Stone Manufacturing Company, since the removal to the new location, is finding its improved facilities favorable for taking care of numerous orders both in St. Louis and outside territory.

The Laclede-Christy Clay Products Company finds a good demand for sewer pipe and fireproofing, but the call for firebrick at present is rather moderate. Mr. Miller says as it takes a demand capable of getting away with thirty carloads per day to keep them real busy at their plants, it is necessary to do considerable hustling in order to come as near to the capacity of the works as possible.

Evens & Howard have secured the contract to furnish the material for the new retort house to be erected by the Laclede Gaslight Company.

The Gant Gilbreath Construction Company, of Chester, Ill., has been incorporated. Capital stock, \$10,000. Incorporators—Elmer Gant, Whitney Gilbreath, Jesse Lee Grant and W. L. Husband. To conduct dredging and general contracting business.

The Theo. Degenhardt Building & Contracting Company, of St. Louis, has been incorporated. Capital, \$5,000. Incorporators—Theo. L. Degenhardt, Gertrude Degenhardt and George R. Hunsche.

The Pea Ridge Brick & Tile Company, of Richmond, Mo., has been incorporated. Capital, \$10,000. Incorporators—Frank R. Atwill, Charles J. Vaughn and James E. Hill.

ROCK PRODUCTS

The Ball Engineering Company, of St. Louis, has been incorporated. Capital, fully paid, \$50,000. Incorporators—P. DeC. Ball, L. L. Swarts and Louis B. Von Weise. The company will do a general engineering, construction and contracting business. The Menard Land & Gravel Company, of Pittsburgh, Ill., has been incorporated to do a construction business and deal in sand, gravel, cement, etc. Capital, \$2,500. Incorporators—R. Y. Kineaid, D. W. Frackleton and Jarvis DuBois.

TWIN CITIES.

Minneapolis, Minn., April 18.—The rush of building this spring is the heaviest in the history of the Northwest, and there is no indication of any letup occurring very soon. All classes of buildings are being erected—business buildings, churches, lodge buildings, theaters, society structures, hotels, hospitals, and residences innumerable. And there is a distinct improvement in the character of the structures built this spring. It seems probable that the statistics for the year will show a distinct increase in the number of fireproof and semi-fireproof structures in all lines, over the previous season.

The construction of reinforced concrete buildings continues unabated, especially for the larger structures, and there are comparatively few of the old style structures of steel and iron girder construction, as compared with the great number of concrete buildings. The attacks upon concrete as a building material have had but little effect toward discouraging that form of construction and probably there is a greater portion of the heavier construction going up in concrete than ever before.

But the concrete block business shows a decided slump. The blocks are being made, but they are going into fewer buildings above the foundation than for a long time. Even in foundations the blocks are not as popular as the slush concrete work is. This is due largely to the poor work which has been put out in the blocks, which serves to discourage their use.

The Zagelmeyer patent system of concrete blocks is a new one which is being offered to the trade in the Northwest, a factory being erected in St. Paul. Robert Goodchild, of the Endicott building, St. Paul, is representative for the Northwest. The slush system is used.

The Minneapolis Master Builders' Association has re-elected James Leck president and Eugene Young secretary.

The structural iron workers have announced that the placing of reinforced concrete iron and steel lines within their jurisdiction must be handled by their union men. Contractors in general are inclined to tell them to wait until they are asked to do it, and then keep on waiting. This work has been done by common labor heretofore, and common labor would still have to be employed to handle the iron to the place it was to be used, when the structural iron workers would condense to take hold. Of course, those who are hooked up with a union and closed shop deal, will have to call in the structural iron workers, or have trouble. But, fortunately, the Twin Cities are largely open shop and but little trouble is expected in this respect.

Ronald McMillan, a pioneer contractor and builder of Minneapolis, died April 9, aged 76 years. He was the builder of a number of the prominent blocks and buildings of the earlier days.

The Gabriel Concrete Reinforcement Company has opened an office at 229 Security Bank building, Minneapolis.

For the first three months of 1910 the city of Minneapolis issued building permits for work estimated to cost \$2,514,535, against \$1,430,905 for the same months of 1909. Inspector Houghton anticipates reaching a total for the year of \$16,000,000.

The L. S. Donaldson Company, of Minneapolis, proprietors of the Glass Block store, has awarded the general contract to J. L. Robinson, for the erection of a five-story reinforced concrete structure, 61'x165' in size, adjoining the present building and running through from the rear to Seventh Street. The lower story will be of green terra cotta exterior walls, and the upper stories of white enameled brick and terra cotta. Cost \$250,000. Kees & Colburn, architects.

J. E. Rogers, of Minneapolis, proprietor of the Unique Theater, will erect a somewhat similar building in St. Paul, on Wabasha Street, running through to St. Peter Street, between Ninth and Exchange Streets. The building will be of reinforced concrete construction and will cost about \$200,000. It is expected to have the work completed by September 1.

The Parlin & Orendorff Plow Company will erect a seven-story brick and reinforced concrete warehouse at Washington and Seventh Avenues North, Minneapolis, to cost \$200,000. Bertrand & Chamberlin are the architects.

The Estate Stove Company will erect a six-story reinforced concrete warehouse on Washington near Ninth Avenue North, in Minneapolis.

The West Publishing Company, of St. Paul, is about to erect a nine-story addition to its plant. The building will be located on the edge of the bluff, and will be six stories below the street level and three above. Cost \$100,000. It will be of reinforced concrete construction.

KANSAS CITY.

Kansas City, Mo., April 19.—Work has already begun on the excavation for the new union depot and terminals in this city, and it will be progressing for the next three years, as it is estimated that it will be full three years before the depot is in use. This will mean much to the cement industry of this section of the country, as a large number of viaducts must be constructed and those already in use must be changed so six tracks can be accommodated instead of two. These viaducts will probably all be made of concrete and their construction will begin at no very distant day.

The tract of land lying north of the city, on both sides of the river, which is owned by the Burlington-Swift syndicate, and which that syndicate expected to sell for the big terminals which have been located elsewhere, is soon to be in shape to sell for manufacturing sites. The bridge which is now under course of construction across the river will make it possible to easily reach the large tract of low land on the north side as there will be a street car line over there, and it will make a fine site for factories if the ground is first built up above the flood point or if a levee is built around it to keep the river in its channel at the time of high water. The approaches to this bridge are being built upon concrete piles which are being manufactured on the ground, the machinery having been brought here for that especial purpose. The piles are made forty feet long and the job will require the use of 1,152 of them, as sixteen of them are used as a base for each pedestal.

Another movement which is of much interest to cement manufacturers and building material dealers in general is the forming of the big boat line company during the past month. It was decided the first of March to inaugurate a thirty days' campaign to raise the \$1,000,000 of capital stock for this company to put a well established boat line on the Missouri between this city and St. Louis. The capital was over-subscribed in that time to the amount of \$200,000, so the boat line is now a sure thing. This will build permanent docks, possibly finding a good deal of use for cement, and then it will furnish low freight rates both out of Kansas City to the South and in from the East, so the western cement manufacturer will be able to market his product to a wider extent of country, and it may be possible that the eastern product will be able to invade this territory at a profit if western concerns do not hold their prices close. The establishment of this boat line is going to give cement manufacturers ample opportunities to figure, some are inclined to think. Another feature of the boat line is the fact that it will give this city such opportunity for extending its manufacturing plants, as it will enable manufacturers to locate at the furthest point west reached by water and give them a cheap method of getting their raw material, thus giving them a decided freight advantage over those located further east, if they are selling to the West. This should cause the city to build up rapidly for a number of years, in fact should keep it building rapidly for a decade at least.

At the present time the contractors in various building lines are all reporting plenty of work on hand and plenty in sight for the forces of workmen they are able to command, but some are reporting a decided shortage in workmen. Some labor unions have been demanding more wages, and as building material has been generally advancing a little it leaves the contractor in a position which is not enviable. He has so little margin left to work on. The builders of rental property cannot afford to have the houses built unless there is reason to expect the investment to bring a good income, and the price of construction will not stand much further advance and leave the investor anything that looks good to him. There seems more danger at the present time from this source than any other, as the shutting off of this class of building for lack of profit to the investor would mean the shutting off of a very desirable class of work which has been regular in the past.

There has been another advance in the price of cement in this city, the retailers stating that it is now \$1.40 per barrel, and they are quoting cement plaster at \$8.50 per ton and lime at 32 to 37½ cents per bushel.

There has been a decided hitch in the letting of the contract for the Brush Creek sewer. When bids were advertised for the call was for either brick or the Jackson concrete pipe, there was no opportunity offered to the builders of monolithic concrete sewers, but it was to be pipe manufactured outside of the sewer and laid therein. J. J. Williams was awarded the contract for the Jackson kind of concrete pipe, but upon having the ordinance investigated by attorneys he refused to carry out his contract, as the attorneys advised him that the ordinance was not legal. The contract was then offered to the next highest bidder and refused, so it will be necessary to pass a new ordinance, the new council taking up the work, and it is possible that the specifications will now be broadened so monolithic work will be possible.

The Kansas City Material Company has been organized with a capital stock of \$50,000, to handle and manufacture crushed rock, building material, cement, etc. A rock crushing plant is to be established four miles east of Independence, Mo., on the C. & A. railway. The officers of the company are W. H. Cafry, Kansas City, president; Joseph Freund, St. Louis, vice president, and H. F. Herman, St. Louis, secretary and treasurer. Mr. Cafry was the promoter of the Bonner Portland Cement Company.

Surveys are in progress for the concrete wall to protect the seventh ward of Kansas City, Kans., from overflow from the Kaw river, and construction work will begin within about a month. The wall will extend from the old Argentine pumping station to the south and west, a distance of 4,000 feet, and will be from ten to twenty feet high, the estimated cost being \$43,000.

Flanagan Brothers have been awarded the contract for the brick work on the De La Salle Academy Building, while the Western Terra Cotta Company has the terra cotta contract and the Martin Carroll Company the concrete contract.

Jos. H. Stone has been awarded the contract for erection of the seven-story E. C. Catlin Building, corner Eighth and Broadway, to be of concrete and brick construction.

The Ridenour-Baker Grocery Company is about to let the contract for a reinforced concrete addition to its building, size 120'x60' and seven stories high. When the addition is completed the main building will probably be built up from four stories to seven, to make the addition.

Col. C. F. Morse is about to begin the construction of a six-story and basement concrete warehouse at 2046 Grand Avenue, size 53'x117'.

The Kaw Missouri Grocery Company is about to begin the construction of a seven-story reinforced concrete warehouse on Second and Walnut, size 40'x137'.

It is announced that the Chicago, Milwaukee & St. Paul railroad will put in concrete bridges between Kansas City and Davenport, Ia.

G. C. Gheen, president of the Bonner Portland Cement Company, reports that the plant is now turning out from 800 to 1,200 barrels of cement each day, and that a ready sale is found for the product.

E. E. Neff, of the E. E. Neff Company, building material dealers of El Paso, Tex., has been in Kansas City several days of this week.

The Lumbermen's Portland Cement Company reports that the plant will probably begin crushing rock within thirty days. They have a large force of men at work now placing the machinery and the brick plant is in steady operation.

Work is to begin immediately upon a six-story steel and concrete building for the Webster Withers estate, at 1120 Walnut Street, to be occupied by the Carl Hoffman Music Company. This structure is to have a white glazed terra cotta front.

S. M. Gloyd and others have purchased a tract of land near the site of the new union depot and will at once begin the erection of a reinforced concrete warehouse thereon, to be ten stories high and contain 275,000 square feet of floor space. It will be similar in construction to the two big Montgomery Ward buildings, which were built by the Gloyds, and they also have an office building built in the past year on Walnut Street, between Ninth and Tenth.

Owners of a large tract of land near Pomona, Cal., which is to be marketed in subdivisions, have placed a contract for 25,000 feet of cement pipe, to carry irrigation water to each ten-acre lot.

Christobal Martinez and others are promoting a company to establish a cement factory near Monterrey, Mexico.

The city of Los Angeles has installed machinery amounting to \$25,000 at the Pacoima quarry, and the equipment was accepted April 4.

Daniel & George, formerly of Globe, Ariz., have started work on a factory for cement brick and concrete blocks at Miami, Ariz.

THE WEST COAST,

San Francisco, April 16.—The demand for building material has hardly been up to expectations in San Francisco this spring, and the amount of construction under way and in prospect is rather small in comparison with the busy times of the first two years after the fire. The records nevertheless show some increase in business during the last month, and contracts for structures of a permanent nature greatly exceed those for wooden buildings. Progress has been delayed by the action of the supervisors, who have extended for another year the permit under which large numbers of wooden buildings were erected inside the fire limits in 1906. The owners of such buildings are still able to make a profit from them, and are unwilling to tear them down until the last moment. The building outlook is rather better in Los Angeles, and Oakland business is unusually active.

Conditions are good in regard to general improvements, which are expected to require fully as much concrete this year as last. Street and sewer work is to be carried out on a very large scale in San Francisco and some other cities around the Bay, while the northern cities are taking up work of this kind more actively than ever. Some large contracts have also been let for irrigation and power development work in the interior.

The shipping season for cement is now well under way. Nearly every steamer going north carries some cement for Portland or Puget Sound, and the lumber vessels find considerable profit in this material as return cargo. Some is also being shipped to Costa Rica and other points on the West Coast. The production of cements in California has been materially increased in the last year, however, and after a dull winter, with more or less stock accumulated, the competition is increasing. There are some reports of price-cutting, and the market seems to be a little weaker than for some time.

After considerable agitation, a Builders' Exchange has been organized at Sacramento, Cal., in which seventeen lines of work are represented. The officers are G. B. Stahl, president; A. Anderson, secretary, and George Herndon, treasurer. It is expected that some 300 members will be enrolled before the end of the month.

One of the largest overland shipments of cement ever dispatched in this state, amounting to 1,000 carloads, will be sent shortly to Big Bend, Cal., for the use of the Great Western Power Company, which is putting in one of the largest power development plants in the world, and will use the cement for a new dam. It will be shipped over the new line of the Western Pacific Railroad, which passes near the dam site.

Bids were opened here recently for the construction of a reinforced concrete lighthouse, fog signal station and several outbuildings at Punta Gorda, near Eureka, Cal., and the contract was awarded to W. M. Wickersham, of this city, who is now preparing to ship the materials to the site. The cost will be \$33,285.

The Harbor Commission has ordered plans and specifications for a new section of the San Francisco sea wall, about 600 feet long, between Spear and Harrison Streets.

The Board of Public Works has awarded the Yerba Buena Sewer contract to the Healy-Tibbets Construction Company, at \$211,898. This is one of the most important sewer contracts let in the city, involving the complete reconstruction of both the sanitary and storm sewers in the district bounded by Market and Folsom Streets, Second Street and the Bay. The sanitary sewers will be laid at an average depth of twelve feet below the street surface, the storm sewers being at a depth of four feet. The former will be of concrete, and the latter of sewer pipe, and a foundation of piles will be driven in the filled-in district. The work is to be completed within a year.

The Metropolis Construction Company has taken the contract for constructing the Sunset sewer, at \$167,000. Plans are being made to let contracts for a lot of other sewers shortly, the principal one being the last division of the Channel Street main.

The work of extending the Columbia River jetty was resumed by the Columbia Contract Company April 5. The government engineers predict that the Columbia River channel will reach a depth of thirty feet at low water by next fall as a result of the jetty construction.

A contract for paving some ten miles of streets in Medford, Ore., has been awarded to the Clark & Henery Construction Company, of Sacramento, Cal., the total cost of the work to be about \$450,000. The streets will be paved with asphalt on a five-inch concrete foundation. The work will be started in a few weeks, and will be completed in about a year.

The Yosemite Stone Company has put a large force of men to clearing the site for its new rock crushing plant on the Merced River, the machinery for which is now on the way.

The Locke Foundation Company has taken a \$17,500 contract for foundations and basement concrete work for the Oakland Hotel building in Oakland, Cal. The fireproofing, including reinforced concrete floors, will be done by the Roebling Construction Company, for \$86,675, and Floodberg & McCaffery will do the plastering for \$57,477.

The Durostone Company, which is planning to market the magnesite from deposits at Magdalena Bay, Lower California, is preparing to erect eight large buildings at National City, Cal.

The Pioneer Plaster Company has purchased a tract of land for a factory at Seattle, Wash.

The California Gypsum & Plaster Company has been incorporated at Bakersfield, Cal., with a capital stock of \$100,000, by C. A. Fuller, R. W. Newbill and J. R. Luttrell.

The capacity of the cement plant at Concrete, on the Skagit River, in Washington, is being increased from 900 barrels to 2,000 barrels per day.

The Pacific Glazed Cement Pipe Machinery Company has been incorporated at Tacoma, Wash., with a capital stock of \$10,000, by Ben Olson, A. P. Allen and others.

The Columbia Concrete Company has been incorporated at Los Angeles, with a capital stock of \$200,000, by H. C. Babel, J. V. Love, S. C. Unger, G. M. Sabean and M. L. Babel.

Dake & Girdelli are completing a plant at Gardnerville, Nev., for the manufacture of concrete products, such as copings, cement blocks, etc.

The Riekon-Ehart Construction Company has taken a contract for concrete, cement work and fireproofing for the St. Mary's Hospital, in San Francisco, amounting to \$66,000.

The Valley Contracting Company is working on a rock-crushing plant near Oroville, Cal., which will be one of the most complete in the country. Two large crushers have already been installed, and two more are to be added shortly, the Farrell crusher being used. The storage capacity is also being increased, with the object of keeping the machinery in constant operation. This plant is similar to that of the Natomas Consolidated near Fair Oaks, Cal., which is considered about the largest in the state. The installation of these large crushers in the Sacramento Valley in the last few years has been in response to a heavy demand for material for concrete work, road improvements and railroad ballast, and so far the demand has kept pace with the supply.

RECTOR TILE AND BRICK COMPANY.

Rector, Ark., April 18.—Among the many improvements that have been added to Rector during the first few months of 1910 is the establishment of the Rector Tile and Brick Company by L. T. Stratton and J. C. Whetstone. The new company will manufacture concrete tiling, brick and concrete blocks.

The first samples of the tiling were turned out Wednesday afternoon, but they are not yet ready to begin work in earnest, as all the machinery is not yet in running order.

WILL PUT IN ANOTHER KILN.

Mankato, Minn., April 18.—A. Jefferson & Son have operated a lime plant at this place for four years. It is located on the Chicago & Great Western Railroad. They expect to put in another kiln in the near future.

The Ball Engineering Company, of St. Louis, has been incorporated. Capital stock, fully paid, \$50,000. Incorporators—P. DeC. Ball, S. L. Swarts and Louis B. Von Welse. To do a general engineering, construction and contracting business.

The Biggsville Crushed Stone Company, of Biggsville, Ill., has been incorporated. Capital, \$10,000. Incorporators—John V. Whiteman, H. L. Fuller, Louis A. Wiegand and Thomas Zimmerman.

The F. Schrim Contracting Company, of St. Louis, has been incorporated. Capital stock, \$2,000.

The Illinois Powder Manufacturing Company, with a home capital of \$75,000, is authorized to use \$50,000 at St. Louis.

Bulletin No. 101 issued by The Taylor Iron and Steel Company discusses the Panama tooth of Tisco Manganese steel, which has been used so extensively by the majority of quarry operators on their steam shovels. The quarry operators who are troubled with having the teeth in their dippers break, will find something that will interest them, by communicating with this company. At least, everyone should have the bulletin, for it contains something of considerable interest besides the Panama tooth.



ARKANSAS BRICKMAKERS MEET.

The third annual convention of the Brickmakers' Association of Arkansas was held March 28-29 at the Marion Hotel, Little Rock, Ark. Addresses were made by A. H. Purdue on the "Possibilities of the Clay Industry in Arkansas"; T. A. Randall, of Indianapolis, Ind., on "Organization," and H. L. Harmon on "Brick-Making Machinery."

The officers of the association are: President, M. C. Burke, Fort Smith; first vice-president, M. L. Case, Pine Bluff; second vice-president, N. P. O'Neal, Hope; secretary and treasurer, C. E. Taylor, Little Rock.

MAKING MANY IMPROVEMENTS.

Salt Lake City, Utah, April 18.—The board of directors of the Utah Fire Clay Company have unanimously voted to spend \$50,000 in improvements upon their present sewer pipe plant. It is expected to have the plant completed in four months.

WILL ENLARGE CLAY PLANT.

Brazil, Ind., April 19.—H. A. Tittsworth, president of the Clay Product Company's plant, was here yesterday to make arrangements for enlarging the plant. Four more kilns will be built at once and new machinery will be installed.

BUY COLUMBUS PLANT.

Columbus, Ohio, April 15.—Charles W. Schneider and John C. Schneider have purchased the Dow brick plant. Extensive improvements are contemplated at the plant so as to double its capacity.

WILL DOUBLE CAPACITY.

Lockhaven, Pa., April 8.—The Bickford Fire Brick Company, of Curwensville, have decided to double the present capacity of the plant. James A. Bickford, of this city, is general manager and treasurer of the company.

The Centralia Brick & Tile Company, of Dover, Del., has been incorporated to manufacture tile, pottery and sewer pipe. The capital stock is \$50,000, and the incorporators are: E. J. Farham, J. J. Harper and G. F. Martin.

CHARLOTTE BRICK & TILE CO.

The Charlotte (N. C.) Brick & Tile Company has been organized to manufacture a new cement brick, and the promoters have on hand orders for filling which the plant already in operation will be rushed for many weeks. W. S. Lee, vice president and general manager of the Southern Power Company, is one of the stockholders in the new company.

The Billings Pressed Brick & Tile Company, of Helena, Mont., has changed its name to the Fromberg Pressed Brick & Tile Company.

The Craycroft-Herold Brick Company, of Fresno, Cal., has been incorporated for \$50,000. The incorporators are: C. J. Craycroft, I. Z. Ickes, F. J. Craycroft, G. D. Herold and William Turner.

The Clay Products Company, of Spokane, Wash., has been incorporated for \$100,000. The incorporators are: D. Sweeney, Andrew Laidlaw and Frank C. Laird.

The El Reno Vitrified Brick & Tile Company, of El Reno, Okla., has been incorporated for \$10,000. The incorporators are: A. E. Lane, Harry Lane, A. C. Krepke and N. A. McLean.

The Close Brick Company, of Matawan, N. J., has been incorporated for \$50,000. The incorporators are: W. A. Close, C. E. Close, W. W. Ames and Joseph Crane.

The San Francisco Stone & Brick Company, of Oakland, Cal., has been incorporated for \$200,000. The directors are: N. L. Dietz, F. V. Schiller, E. B. Bryan, D. O. Wallace and A. W. Eimann.

The Potoka Brick & Tile Company, of Huntingburg, Ind., has been incorporated for \$25,000. The incorporators are: Charles Reutepohler, C. H. Schwartz, Otto Schenck and C. J. Castrup.



National Lime Manufacturers' Association

Meets Semi-Annually.

OFFICERS.

William E. Carson, Riverton, Va.	President
Charles Weiler, Milwaukee, Wis.	1st Vice-Pres.
Walter S. Sheldon, Hamburg, N. J.	2nd Vice-Pres.
Geo. J. Nicholson, Manistique, Mich.	3rd Vice-Pres.
C. W. S. Cobb, St. Louis, Mo.	Treasurer

EXECUTIVE COMMITTEE.

William E. Carson, ex-officio; Chas. Warner, Wilmington, Del.; J. King McClannahan, Jr., Hollidaysburg, Pa.	
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LIME AS A FERTILIZER.

By J. B. Graham.

The problem of restoring fertility to exhausted soils is extremely difficult because of the variety of conditions, both in character of soil and the method of treatment. That complete fertilizers are necessary to replenish the supply of plant food is an established fact, but one of the most important factors towards securing a maximum of efficiency has only lately been recognized, and that is the application of lime. The effect of lime has been universally misunderstood by the majority of agriculturalists, the opinion erroneously existing that lime is a complete fertilizer. As a matter of fact, it is not, although it is an important source of calcium, one of the mineral elements upon which a number of forms of plant life depend largely for healthy and vigorous growth. Its principal value lies in its power to correct the acidity and thus encourage the growth of plants that are not especially adapted by nature for thriving on lean soils. The two principal effects produced by the application of lime is first, to correct the acidity of the soil and secondly, to decompose the soil itself. Very few plants will reach a state of healthy maturity on soils that are strongly acid. This is explained by the fact that practically all plant life, especially leguminous, require large quantities of nitrogen to properly build up their vegetable tissues and carry on their processes of assimilation of other important elements from the soil. These vital chemical changes so necessary to plant life are brought about by small organisms known as nitrifying bacteria, that inhabit their root fibers. The process which is termed nitrification and by which the nitrifying bacteria transform the insoluble organic nitrogen such as ammonia into soluble nitrate nitrogen, the form in which it becomes available as plant food, is greatly promoted by the presence of lime. The nitrogen gathering bacteria of the legume plants will not develop and multiply in acid soil, with the result that the root fibers do not have the power to accumulate the large quantities of atmospheric nitrogen they must have. It can readily be seen how necessary it is that all cultivated plants have an abundance of lime available in the soil.

The other effect produced by lime is the decomposition of the soil itself. In this process the organic matter is destroyed with the liberation of nitrogen and phosphorus held in organic forms and the mineral particles are disintegrated with the liberation of plant food elements such as potassium and possibly phosphorus held there in inorganic form.

It is then evident that the first effect of lime, the neutralization of soil acidity, results in a building up process through increased plant growth and the multiplication of nitrifying bacteria. Whether the second effect is desirable depends largely upon the nature of the soil itself. On soils exceedingly rich in organic matter such as swamp land and low ground it is good practice to use lime to hasten its decomposition and the consequent liberation of nitrogen. Where conditions exist under which soils contain large amounts of phosphorus or potassium that are too slowly available for crop production a liberal application of lime is usually of great benefit.

A number of minor improvements on various types of soils are traced directly to the action of

lime. Wet clay soils not porous enough to allow water to pass through them rapidly become water logged to the exclusion of air necessary to the healthful development of plant roots within the soil. Lime renders the surface more pliable and less likely to form a crust in drying, that will interfere with the passage of air and moisture. Lime has a tendency to prevent the surface wash during heavy rains, ostensibly because the water has an opportunity to sink into the soil instead of being carried over the surface.

Siliceous or sandy soils are frequently benefited by a conservative amount of lime which tends to render them more compact. It is rational to increase the amount of organic matter in such soils by applying stable manure, muck and manufactured fertilizer and by the occasional plowing under of grass or clover sod. In this connection it might be well to state that a decided increase of plant food can be retained in stable manures by adding quantities of lime from time to time to manure piles around stables. It assists in breaking up the fibrous material and absorbs valuable plant foods that are otherwise often carried away by drainage from heavy storms.

The question now arises as to the most desirable form of lime to employ in soil treatment. By all means the commercially known hydrated lime is preferable. Not only does hydrated lime far exceed carbonate of lime in its immediate stimulating effect, but by absorbing carbonic acid from the soil and air it is gradually converted into carbonate of lime in a very finely divided state that will be retained permanently in the soil as a regular source of the plant food calcium. Hydrated lime is by far the most economical of all the combinations of calcium by reason of the ease and uniformity of distribution and the large amount of surface it will cover. One ton of chemically pure hydrated lime should and will cover as much territory and give as much stimulation to soil as several tons of limestone. While the first cost of hydrated lime may seem prohibitive from the economical standpoint it is imperatively important to go further and calculate the actual amount of good the soil derives from it. It can now be gathered that lime in itself is not a complete fertilizer, but is nevertheless one of the most valuable adjuncts to farm lands. There is hardly any kind of soil that will not benefit in some way or another by the regular and judicious applications of lime.

Manufactured or natural fertilizers should never be used except in conjunction with hydrated lime, for it is the lime that liberates the plant foods and insures profitable crop yields. The American farmer is beginning to realize that a liberal application of lime to soils that have been so constantly cropped that the important plant food elements have been exhausted, is beneficial in the extreme and that his efforts and expenditures will be amply rewarded by a bountiful increase in crops and a general improvement of his entire property.

WILL INSTALL HYDRATOR.

Calcis, Ala., April 14.—E. A. Turner has a lime plant at this place, which has been in operation for ten years. His plant is composed of two kilns with a capacity of 120 barrels each per day. It is located on the Central of Georgia railway. The lime manufactured analyzes over ninety-nine per cent carbonate of lime. He expects to install a hydrating plant and make other additions, as well as install a gas producer to furnish the fuel. Speaking of trade conditions, he says the outlook is very good to him.

OUTLOOK IS GOOD.

Spokane, Wash., April 21.—The Idaho Lime Company, of which J. H. Evans is the president and J. A. Hurd the secretary and treasurer, have their office at this place and their plant at Evans, Wash., where they have three kilns. These have a capacity of 100 barrels each per day. Wood is used in burning the lime and all the product marketed is sold in lump. They expect to add another kiln to their equipment, and say the outlook for 1910 is good.

WILL MAKE IMPROVEMENTS.

McAfee, N. J., April 19.—The New Jersey Lime Company, of which Walter S. Sheldon is president and treasurer, have seven kilns in their plant at this place, and eight kilns at the Hamburg plant of the company. These are all modern gas fired continuous kilns, and the company produces a lime which analyzes about ninety-six per cent calcium. They have been in operation forty years. They contemplate, at the present time, erecting a hydrating plant and to make other improvements. They say the outlook for 1910 business is excellent.

IMPROVE CHARGING EQUIPMENT.

St. Louis, Mo., April 19.—The Cliffdale Lime Company have their general offices in the Odd Fellows building and their plant at Brickeys, Mo. Here they have five kilns and have been in operation four years. They expect to place steel hoods on the kilns and erect an incline for loading their material into the kiln. In regard to business, they say the outlook at the present time is very good.

WILL MINE THEIR OWN COAL.

Chattanooga, Tenn., April 16.—The Cumberland Coal and Lime Company, whose general offices are located in this city, have two kilns at their plant at Cumberland, Ala. They have been in operation two years, and expect to add another kiln to the equipment, as well as opening up the coal deposits in their territory. In regard to trade conditions for 1910, they say the outlook is very good at this time.

LIME ALL SOLD IN LUMP.

Garfield, Ark., April 11.—P. McKinley has two kilns in his plant at this place. It is located on the Frisco road and has been in operation for fifteen years. All the lime manufactured by him is sold in lump. He has just completed lining one of his kilns with fire brick and now has it in operation. He says the business outlook is good.

FAIR OUTLOOK IN COLORADO.

Denver, Colo., April 12—The Colorado Lime & Fluxing Company, of which E. F. Perry is the president and F. L. Perry, the secretary, have their plant at Newett, Colo. Here they have three kilns of stone and brick construction. Gravity tramways into the quarry and plant, 1,700 feet long with about 25 per cent grade, convey all the stone to the plant. The plant is located on the Colorado-Midland railroad and has been in operation seventeen years. Stone from which the lime is made runs high in calcium. They think the outlook for business is very fair.

OPERATED ALL WINTER AND SPRING.

New York, N. Y., April 15.—The offices of the Hoosac Valley Lime & Marble Company are at 511 West Forty-second Street. P. H. McNulty is the president and is at this office. The plant is located at Adams, Mass., and is under the direction of the secretary and manager, William Flaherty. They have two kilns with a capacity of fifty-five barrels each per day. The plant is located on the B. & A. railway, and has been in operation three years. They expect to add additional kilns to the plant in the very near future. In regard to business they say: "We have operated two kilns all winter and spring as we have been very busy, and the outlook is the best we have seen for a number of years."

BUSINESS OUTLOOK FAIR IN VERMONT.

St. Albans, Vt., April 18.—W. B. Fonda, whose office is at this place, has his plant at Swanton Junction, Vt. Here he has a battery of seven kilns with a capacity of 100 barrels each per day. His lime is all burned by wood and the analysis shows it to contain calcium oxide of over 99 per cent. The kilns have been in operation for fifty years, and Mr. Fonda says the business outlook for 1910 is fair.

MICHIGAN PLANT DESTROYED BY FIRE.

Petoskey, Mich., April 7.—The kilns and building of the Antrim Lime Company were completely destroyed by fire today. The loss is placed at \$5,000. President Nathan Jarman stated that the plant would be rebuilt immediately.

CHANGE IN NAME.

East Sylamore, Ark., April 18.—The Arkansas Lime Company succeeds the George R. Case & Sons Lime Company, who operate a lime plant at this place. The company has recently been incorporated for \$50,000 and the officers are G. R. Case, president; H. R. Case, vice-president; W. F. Perrin, secretary, and Junius R. Case, treasurer. They are making several improvements at the plant and expect to have it completed about July 15th.

The Nittany Lime & Stone Company, of Bellefonte, Pa., has increased its capital stock from \$1,000 to \$30,000.

The Universal Lime Company, of Chicago, Ill., has been incorporated by C. A. Klotz, William E. Rafferty and M. Dragus.

The Kelly Island Lime and Transport Company is arranging to drive more of its quarry machinery at Akron, N. Y., and Martin's Station, Ohio, by induction motors and has recently placed an order for the same.



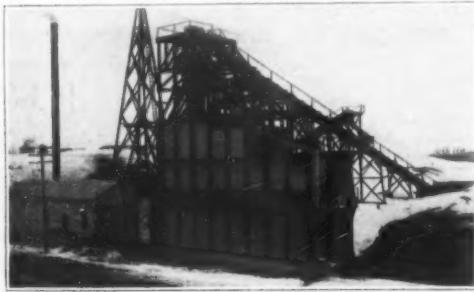
NEW PLANT AT MINNEAPOLIS.

A gravel washing plant of the most modern character was erected during the past season by the J. C. Buckbee Company, engineers of Chicago, for the Washed Sand & Gravel Company of Minneapolis, Minn., at McNair lake, on the Great Northern railroad, about two miles from the city limits of Minneapolis.

This plant has a capacity of about 750 cubic yards per day of ten hours, and is of the standard design of the J. C. Buckbee Company, such as they have erected for the Lake Shore Sand Company at Algonquin, Ill.; Joliet Sand & Gravel Company, Plainfield, Ill.; Akron Gravel & Sand Company, Akron, Ohio; Southern Gravel & Material Company, Brookhaven, Miss.; Hickey Brothers & A. F. Burke & Sons, Belle Fourche, S. D., and others, most of which plants have been described previously in this journal.

The conveyors, screens and loading gates were furnished by the Stephens-Adamson Manufacturing Company, of Aurora, Ill., while the crusher is of the Gates design, all under the specifications of the J. C. Buckbee Company. The structures are of yellow pine, while the cribbing of the bins is of Tamarack. All foundations are of concrete of a most substantial character. A power plant setting to one end of the washing plant is equipped with a 125 horsepower automatic high speed engine and 150 horsepower Scotch marine type boiler.

The gravel is loaded by a drag line excavator



PLANT OF WASHED SAND & GRAVEL COMPANY, MINNEAPOLIS, MINN.

into four yard cars and hauled to the plant by a small locomotive. The bank varies from fifteen feet to forty feet in height and carries a considerable amount of granite boulders, which are broken down in the crusher, and result in a very fine production of crushed stone in the gravel, making the gravel highly desirable for concrete, as well as road purposes. The sand portions of the bank are sharp and coarse and the product when washed is thoroughly free from any soil, clay or undesirable matter.

Inasmuch as this is the only modern gravel washing plant in the vicinity of Minneapolis, it will be of interest alike to both those in the gravel producing industry and to contractors contemplating work in the Minneapolis or St. Paul territory, as they can be assured of an absolutely first-class concrete material from this plant.

The offices of the Washed Sand & Gravel Company are in the Lumber Exchange, F. M. Henry is manager.

GRAVEL PIT TO OPEN.

Clinton, Ia., April 10.—The big gravel pit which was opened last summer by the Northwestern Railway Company at Galt to furnish gravel for the Whiteside county cutoff will be in operation again within a day or two. The working of this pit will give employment to between 100 and 150 men. Much of the track in both the Nelson and Whiteside county cutoffs will have to be resurfaced, and there is much temporary ballasting which will be replaced by gravel. It is likely that the big pit will be in operation all summer.

GRAVEL COMPANY BUYS PIT.

Terre Haute, Ind., April 17.—The Wabash Sand & Gravel Company has purchased the old Lyford gravel pit, located two miles north of Clinton. The Lyford pit is one of the oldest in the state

and the entire roadbed of the Evansville & Terre Haute railroad was built from gravel taken from the pit. The pit proper has more than five miles of railroad siding running through it. The Chicago & Eastern Illinois railroad took much of their roadbed gravel from the old pit. Despite this, there remains in sight more than 1,000,000 cubic feet of ballast.

ENLARGE OPERATIONS.

Warren, Ohio, April 18.—The Portage Silica & Sand Company, which has its plant located between Mahoning and Garrettsville, will soon have 100 men working at its washery and quarry. The company is to place a second switch engine in commission, as well as a second crusher. Several Warren men are financially interested.

WILL AMEND CHARTER.

Chattanooga, Tenn., April 19.—Application for an amendment to the charter of the J. F. Dale Sand Company has been filed in the office of the county court clerk. The incorporators are J. F. Dale, S. W. Thompson, John Noll, Sr., C. S. Thompson, Sr., J. L. Foust.

SAND PLANT SOLD.

Croyland, Pa., April 20.—The plant and equipment of the Gasovi Silica Sand & Stone Company, located at Croyland, was sold at sheriff's sale recently. The property was knocked down to J. H. Lepsch, the price bid being \$10,100.

A GOOD RECORD IN PULVERIZING.

Winchester, Ky., April 18.—A new record has been established in the pulverizing department of the Winchester Granite Brick Company, whose plant is located here. They have an American pulverizer which has pulverized 20,600 tons of sand stone from the mountain side. The sand stone contains about twelve to fifteen per cent of flint pebbles. The cost of the maintenance of the machine is \$79, which is a pretty good record for pulverizing such material.

The Frontier Sand Company, Buffalo, N. Y., has been incorporated to quarry and deal in sandstone, sand, gravel and other minerals, building and paving stones, etc. Capital stock, \$5,000. Edgar H. Case, Milton S. Finley, Charles C. Farnham, all of Buffalo, N. Y.

The Feliciana Sand & Gravel Company, New Orleans, La., has been incorporated to develop gravel and sand deposits, by J. H. Wiley, president, and Joseph A. Wisong, secretary. Capital stock, \$500,000.

Will Thomas and John Davis, Laramie, Wyo., are incorporating the Laramie Sand & Gravel Company for the purpose of handling the sand and gravel contracts from the Union Pacific Railroad Company.

The Menard Sand & Gravel Company has been incorporated at Petersburg, Ill., to do a general construction business, to deal in sand, gravel and cement, by D. W. Frackelton, R. Y. Kincaid and Jarvis DuBois. Capital stock, \$2,500.

The Brookhaven Sand & Gravel Company, Brookhaven, N. Y., has been incorporated to deal in sand, gravel, etc., by Frank M. Mathewson, New York; Lee Weil, 352 West Forty-sixth Street, New York City, and Joseph Beasley, Jr., 165 Broadway, New York City.

W. E. Plummer, secretary of the Buffalo Sand-stone Brick Company, Buffalo, N. Y., writes: "The writer has been very busy for the unexpected has happened and we are flooded with orders. Our brick of 1909 under new process evidently woke up the trade and people we never heard of are calling on us for supply. The result is that we have business now in sight to take our entire output for four months, and there is more coming."

The Sand, Lime & Brick Company, of Boise, Idaho, report business very good. They have already booked quite a number of large orders and the outlook is bright.

The Rocky Face Silica Sand Co. has been incorporated at Dalton, Ga., with a capital of \$100,000. F. T. Hardwick, of Dalton; J. M. Stephens, of Atlanta, and F. M. Stubbs, of Augusta, are among the incorporators.



ABOUT SAND LIME BRICK.

William H. Crume, president and general manager of the Crume Brick Company, Dayton, O., one of the most capable and successful members of the sand lime brick industry, gives the following talking points in the sale of his sandstone brick, which he has found to be those things which make the buyer of brick sit up and take notice, and it is a suggestion to other manufacturers to send to Rock Products a similar article for publication, so that by the end of the year we may have a collection of the best thoughts from all of the salesmen in the business, and thereby constitute a compendium of selling talk which will be of immense value to the men who read and digest the number which such a polyglot article will build up. We hope to have another number of this series from another one of the live members next month.

"Sandstone brick, being all hard or weather brick, make a much stronger building than kiln run clay brick of the common variety, as all brick are weather brick and uniform in strength and color; whereas, with the mud or clay brick, about one-third are weather brick and the balance are soft and of low compressive strength; a building built of kiln run clay brick is only as strong as the soft brick, for the bulk of the weight is carried by the soft backing up brick.

"Sandstone brick for interior walls, linings of factory buildings, warehouses, basements, gymnasiums, light courts, etc., not only gives a permanent white surface, but one that is hard and smooth and sanitary.

"For reinforced concrete skeleton buildings, where the concrete frame is exposed, sandstone brick curtain walls blend in with the color scheme on the exterior as well as lighting up the interior.

"For white stone or terra cotta fronts, sandstone brick carries out the color scheme for the side walls or other exposed surfaces.

"For boiler settings and furnaces, sandstone brick being denser and of lower heat conductivity than common clay brick, tend to increase the efficiency of the boiler by retaining the heat; then, too, they are not injured by escaping steam or water; the expansion being much less than in clay brick, the annoying cracks in the wall are practically eliminated.

"By the use of sandstone brick for residences of moderate costs, not only the front, but side and rear walls are of the same color; in place of the pressed brick front and red or other colored common brick side walls so often seen, reminding one of a 'dickey' shirt front tied on to a red flannel undershirt.

"Of course the above applies only to good sand lime brick; there is no excuse for making any other kind, but if there is an occasional batch that are off standard, bury them; don't try to sell them; for if you do they will rise up and smite you just about the time you think you have some good contract cinched."

INSTALLS BIG PLANT.

Fremont, Neb., April 15.—A. M. Baugh, superintendent of the Fremont Granite Brick Company, returned yesterday from Rapid City, S. D., where he went several days ago to take charge of the installation of a large brick plant at that place, similar to the one operated at Fremont, the Fremont Company having loaned Mr. Baugh to the Dakota company for a consideration to superintend the installation of the new plant.

Mr. Baugh spent several days with the Dakota people and returned to see how the home plant and operations are getting along. He will make trips to Rapid City about every ten days so long as his services are needed there, and the new plant is ready for operation.

Mr. Baugh says that work is being rapidly pushed on the Dakota plant. Over twelve carloads of material are on the ground, and more is arriving every day. The new plant will have a capacity of about 40,000 brick daily, which is about twice the capacity of the Fremont plant.

The Dakota company was very anxious to secure permanently the services of Mr. Baugh to take charge of its plant, but the Fremont company would only agree to loan him until the plant was built and duly installed.

The plant of the Saginaw (Mich.) Sandstone Brick Company, which was closed down while undergoing repairs, is now running full time and has quite a number of orders ahead.

QUARRIES

THE NEW DISC CRUSHER.

An Entirely Original Principle Introduced for Cheapening the Producing of Small Size Screenings.

The tremendous strides that have in recent years been made in the matter of rock crushing equipment are familiar to the readers of Rock Products. Not the least among the meritorious innovations of the last few years has been the introduction of the Symons gyratory crusher. This machine contains a great many elements of originality and has won its place in the trade upon well placed and dependable merits. The work of Edgar B. Symons and of the Symons brothers, as inventors of crushing machinery, has always been along independent and carefully calculated practical lines.

Their latest work, one which has just reached completion, differs from all previously built crushing machinery in so many particulars and at the same time contains so many points of excellence that a full description of the same cannot fail to be of the deepest interest to the crushing trade.

Symons Brothers call it a "disc crusher" and it is intended for crushing rejections coming from the product of large gyratory breakers or for pulverizing the small boulders such as are rejected from the screens of sand washing and separating plants. The Symons Disc Crusher fills a gap which has been one of the few unobtainable points to the crusher operator up to this time.

With this machine it is possible to take the larger rejections that come down from the screen and reduce the same to one maximum size in a single operation, sending the material back so that the largest pieces of the product of the Symons Disc Crusher will pass through a ring of the size to which the discs are set at the discretion of the operator.

The capacity of the machine is amazing to those most intimately acquainted with the technique and experience of rock crushing operations. The expense of running a large proportion of the material that passes the screen back for a recrush in cases where a great volume of small sizes are needed is efficiently reduced and well nigh eliminated by the use of the new Symons Disc Crusher. An illustration of a sectional view of the machine itself is given on this page and it may be described practically as follows:

The crushing is done by means of two saucer shaped steel plates, one of which revolves in a vertical position and the other revolving in a plane slightly inclined toward the first plate at the top. The feed comes through a hole in the center of the vertical saucer-shaped plate. There is no grinding motion of any kind—simply a positive crush. The rock when introduced between the saucer-shaped plates falls into the concave space between the two where the plates are farthest apart. Then in exactly one-half of a revolution the rock is carried to the position where the plates are closest together, in this way crushing the rock by direct pressure without a slipping or grinding motion. The release is instantaneous, for in the next half revolution the finest portion of the crushed material is thrown from the periphery of the discs, the larger pieces slipping farther out for the next revolution. When one considers that the speed of the revolving discs is maintained at 350 to 600 revolutions per minute, it will readily be seen that a constant stream of the fine material is driven off from the discs at an astonishingly rapid rate, and further that it makes little or no difference whether the material to be crushed is wet or dry, for the positive action of centrifugal force is equally applicable to every condition of rock or similar material.

The Symons Disc Crusher is in fact a very simple machine, and for originality is a distinct departure from anything that has ever been attempted or applied to the purpose of crushing rock and similar materials. All of the following familiar parts of crushing and grinding machinery have been discarded in this machine, which has no gear wheel, no eccentric, no rolls, balls or hammers, no gyrating head or swinging jaw, and consequently these expensive wearing parts are not present to burden the maintenance account.

The two revolving discs alone can be considered in this machine as working parts, and it requires

but little inspection to observe that the wear upon these is very slight, and their replacement after being completely worn out in service is an insignificant item of expense as compared to the working parts of the other types just mentioned, and they can be put on with a slight loss of time and by any handy machinist about the plant.

In producing large quantities of fine material, say from $\frac{1}{2}$ inch to dust or even $\frac{1}{4}$ inch to dust, it is desirable to have a machine that is impossible to choke up, and this has been accomplished in the Symons disc crusher by reason of the fact that in one-half of the revolution the discs are separating or opening up in such a way as to throw the material forcibly from the surfaces on which the crushing has just been completed.

The entire machine is automatically lubricated, the main shaft as well as the ball bearing which carries the inclined crushing plate run in a bath of oil. The base of the machine is formed into an oil tank, so that the oil which passes through the various bearings when the machine is in motion returns again to the tank, and the whole machine and all its parts is so housed that it is impossible for dust or grit of any kind to find its way into the oil bathed bearings. It is a perfectly balanced machine requiring but little power comparatively to drive, and it is as nearly automatic as possible for such a machine to be. Driven by one belt it merely requires the attention of the operator to regulate the feed, to observe the flow of lubricating oil and to attend to the flow of the output.

The selection of the materials for the construction of this machine has been done with a view to securing the best results in the light of the experience that Symons Brothers have accumulated in their past achievements in building crushing machinery. The revolving discs which do the crushing are of manganese steel.

When it comes to the matter of recrushing rejects, river pebbles, boulders or even granite spalls down to $\frac{1}{4}$ inch size or less, this machine amounts to a revolution of all previous ideas.

On account of its simplicity it is an economical machine. Economical in first cost as well as in the cost of maintenance, and it is such a machine as can be relied upon to produce a steady and dependable amount of output for the calculations of the man who has stated orders to fill, or who has a plant to provide with a known and steady supply of fine material.

At present the Symons Disc Crusher is built in three sizes, which are determined by the diameter of the crushing discs and are respectively 48, 24 and 13 inches in diameter. The machine having 48-inch discs receives rejections up to 7-inch cubes and crushes the same to any size desired between the 4-inch ring and the $\frac{3}{8}$ -inch ring. Its capacity when producing crushed rock that will pass the 1-inch ring is from 50 to 90 tons per hour.

The 24-inch disc crusher takes rejections ranging in size from $\frac{3}{4}$ to 4 inches and reduces to any size down to the $\frac{1}{4}$ -inch or even less. Its capacity when producing $\frac{3}{4}$ -inch material is from 20 to 25 tons per hour, according to the nature of the material itself.

The 13-inch disc machine receives the material which has passed a 2-inch ring and reduces the same to any size down to the $\frac{1}{8}$ -inch and less. Its capacity when making $\frac{1}{4}$ -inch product is about 7 tons per hour.

The Symons Brothers consider this achievement as having no equal by any other known route of producing fine material.

J. E. Symons and W. M. Symons constitute the commercial end of the firm, of Symons Brothers, and they keep their office in the Old Colony Building, Chicago, where they are introducing this newest and greatest machine of their brother's invention with a great deal of success, and with many congratulations from those who have found the

machine to be the one thing which they have needed in the past, and which has seemed to be unobtainable until the Symons Disc Crusher was completed.

This crusher has been well tried out, and the announcement has been withheld until every possible demonstration of the machine in operation for a period of six months was fully completed, and by the use of the hardest trap rock and the most irregular and hard pebbles that come from river gravel, which constitute the crucial tests of machinery designed for such a purpose.

The machine is particularly adaptable to the growing industries that the cement trade has made for large quantities of finely reduced materials for aggregate as well as for special compositions of various kinds.

BELIEVES IN CENTRAL SELLING AGENCY.

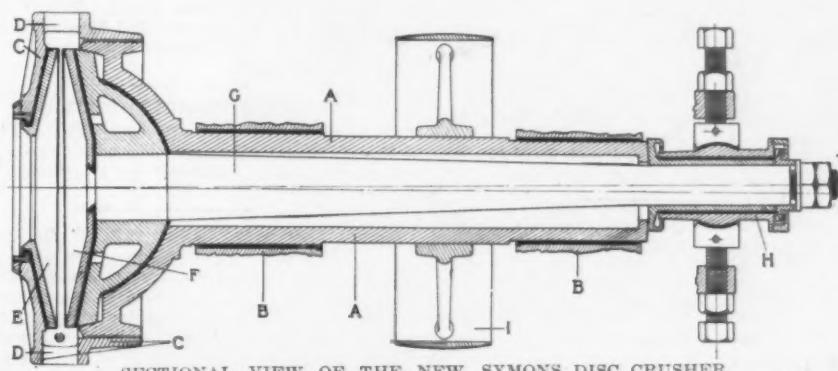
A prominent eastern supply dealer has the following comments to make on an article which appeared in the March issue of Rock Products: "I noticed this article on the unsatisfactory methods of selling stone, and this condition really does exist, in our territory especially. It has demoralized the crushed rock business to such an extent that it is almost impossible for the quarrymen to obtain a legitimate price for their product. It is just another question of a man without a business making something at the expense of the producer, which is injuring this country to such a degree that it is bringing about a conflict between capital and labor. I certainly think it would be a good move if the quarrymen did get together and decide not to sell anyone but the contractor himself, for the keen competition in this market from outside shippers makes it difficult to make any profit from the product at all. I think the best plan would be for the operators to organize a selling agency in each city for the express purpose of securing and distributing the orders which come from the territory. Also that they have selling agencies to cover the outside territory, so that there would be a unity of action in the selling department of each business."

A MARKET FOR SCREENINGS.

Now that the specifications of Chicago contractors for aggregates in concrete have been adjusted so that limestone screenings can be used, the various crushed rock operators have equipped their plants to produce this material. A few years ago one would see thousands of tons of screenings and rejections piled up around the plant. Now equipment has been installed to make a product to fill the requirements. This equipment in most cases consists of a set of rolls and practically every plant in the district which supplies the Chicago market has a set of rolls in operation. It has been found that crushed limestone screenings can be used in concrete and it gives excellent results. Operators who have allowed screenings and rejections to accumulate for years will find a ready output for this product if they push it in the right direction. When they have disposed of the product now on hand they will find that a market has been created and what has been a waste can be turned to one of the most profitable departments of the business.

EQUIPPING PLANT WITH ELECTRICITY.

Waukesha, Wis., April 19.—The Waukesha Lime & Cement Company is adding considerable equipment to its plant here and has recently placed an order for both crushing and electrical apparatus. This includes one No. 12 style "K" Gates breaker, two No. 9 style "B" Gates elevators, one with 43' centers and one with 72' centers, and four 400-volt, 3-phase, 60-cycle, squirrel-cage induction motors varying in size from 30 horsepower to 150 horsepower.



SECTIONAL VIEW OF THE NEW SYMONS DISC CRUSHER.

ROCK PRODUCTS

APRIL 22, 1910.

BUY MORE PROPERTY.

Caledonia, N. Y., April 17.—The General Crushed Stone Company have purchased property adjoining that which they now own and will extend their quarrying operations.

NEW INDIANA PLANT OPERATING.

Greencastle, Ind., April 20.—The Ohio and Indiana Stone & Quarrying Company, which recently completed a large plant near this place, is now operating full capacity. The plant is on the line of the Big Four road and has a contract to supply it with rock for ballasting.

ADD NEW EQUIPMENT.

Greencastle, Ind., April 20.—The A. C. Stone Company have recently installed a 40-horsepower engine, which is to be used for operating the cars and hoisting them to the crusher house.

STONE COMPANY'S SCHEDULES.

Herkimer, N. Y., April 10.—The schedules in bankruptcy of the Little Falls Stone Company, which was forced into bankruptcy several weeks ago after D. F. Strobel had been appointed as receiver by the state courts, have been filed and it is expected that Referee De La Fleur will soon call a meeting of creditors. The total liabilities of the bankrupt company are given at \$323,379, with nominal assets of \$224,879.

EXPECT TO OPERATE BY JULY 1.

Columbus, Ohio, April 17.—The Capital Limestone Company expects to have the new crushed rock plant it is building completed by July 1. The plant is located on the line of the Toledo & Ohio Central road. The J. C. Buckbee Company, of Chicago, are the supervising engineers. The equipment will include a No. 7½ McCully crusher, elevators and a 48"x16' revolving screen. C. B. Trott, of Mount Vernon, Ohio, is secretary and treasurer of the company.

STONE BUSINESS LOOKING UP.

Cleveland, Ohio, April 18.—With the reopening of navigation the Kelley Island Lime & Transport Company will set in operation again its fleet of eight or nine vessels which transport limestone from Kelley's Island, in Lake Erie near Sandusky, to Cleveland, where it is used in the nine blast furnaces here. The stone is of an exceptionally fine quality for this class of work.

Some big flagging contracts are to be let within the next few weeks by Cleveland and other Ohio municipalities and the stone companies here are busy looking them up. Prices will be about the same as a year ago.

OPEN QUARRY AT RISING SUN.

Bowling Green, Ohio, April 17.—George Mercer has dismantled the plant he had at this place and shipped the crusher to Rising Sun, where he is opening a crushed rock quarry. He will install a new crusher in the plant here to double the capacity.

The Gibraltar Quarry Company, of Detroit, Mich., has been incorporated for \$20,000.

The Woodruff & Pausch Stone Company, of Columbus, Ohio, has increased its capital stock from \$230,000 to \$300,000.

The Ellis Park Stone Company, of Cedar Rapids, Ia., has been incorporated for \$40,000, by H. J. McCabe and J. E. Vanse.

The Muskogee Crushed Stone Company, of Muskogee, Okla., has increased the capital stock to \$35,000.

The Fox-Paxton Company, of Little Rock, Ark., has been incorporated for \$10,000. The incorporators are J. W. Fox, J. J. Fox and F. M. Paxton. The company will install a crushing plant.

The Forest Construction & Quarry Co., of Richmond Hill, N. Y., has been incorporated for \$150,000. The incorporators are: James R. Seal, Paul Gesche and John P. Warner. The company will deal in all kinds of building material and do construction work as well.

H. H. Hardaway is building a stone-crushing plant about twelve miles from Columbus, Ga.



BIG PLASTER CONTRACT.

Chicago, April 21.—Ten thousand tons of plaster will be used to finish the twenty-story skyscraper building of the People's Gaslight & Coke Company, corner Michigan Avenue and Adams Street. This vast quantity of Imperial cement plaster, the product of the United States Gypsum Company will cover the walls and ceilings on the various floors of this mammoth structure and will also be used for deadening and fireproofing the floors. This is a hard wall plaster, just like rock. It is fireproof, is an excluder of heat and cold and also vermin-proof. Rats or mice cannot gnaw through it. McNulty Brothers, of Chicago, who were given this contract, say they use it because it is the highest grade of plaster manufactured. The first coat on the wall is put on of Imperial plaster and the surface treated with plaster of Paris and lime putty finish, producing a hard and remarkably smooth and attractive surface. The ornamental plaster work in the coffer ceilings on the first and second floors is artistic in design and detail. The ceilings are divided into panels with rosettes in relief in the center of each panel, and it is said the workmanship in this ornamental part as well as in the plain plastering throughout is the finest and nothing superior is found in any building in this country or in Europe. D. McNevens, foreman on this job for McNulty Brothers, said that 100 plasterers and helpers had commenced working in this building last September and have worked every day continually since and will finish the building by July 1 on contract time. Thomas J. McNulty spoke of the good and healthy conditions in the trade which made it possible this year to do good and quick work without fear of friction and hindrance in taking and completing contracts.

BLACKSTONE HOTEL.

Chicago, Ill., April 21.—Unquestionably the interior finish of the Blackstone Hotel, opened to the public recently, is among the most artistic, and in such good taste, that few structures of this character in the country can compare with it. The ornamental plaster work in the banquet and art halls, the private and main dining-rooms and the lobbies is specially striking and attractive. These rooms are elaborately treated in the French Renaissance style, the purely ornamental work being sculptured, showing the highest degree of artistic workmanship. This work consists of figures and running ornaments of various designs. In all these ornamental features, all of the work was run in place and on the run moldings.

Twenty-five thousand bags of Imperial cement plaster were used to finish the work of plastering the hotel throughout. Fifty plasterers were employed from September to March 1, when their work was completed.

The Zander-Reum Company, one of the prominent plastering concerns of Chicago, did this work, did it well, and on time. The "Blackstone" is Chicago's latest and finest addition to its magnificent and mammoth hotels.

ANOTHER KELLASTONE PLANT.

Louisville, Ky., April 18.—W. C. Priest & Co. has closed a deal with the U. S. Kellastone Company, of Terre Haute, Ind., to erect a plant for the manufacture of Kellastone, in this city. The plant will be located at 2808 Jones Street. This is the tenth plant that has been established to manufacture this material, which is a plaster adaptable for exterior building purposes.

ADD STORAGE FACILITIES.

Nephi, Utah, April 19.—The Nephi Plaster & Manufacturing Company have added to their building here a large warehouse for the storage of their materials.

QUANAH MILL INCREASING CAPACITY.

Quanah, Tex., April 20.—The mill of the American Cement Plaster Company has been enlarged by the addition of another story to the mill building. This will increase the capacity about 20 per cent. This is one of the largest mills that the American Company have, and the plaster at this place is made from gypsum found in this vicinity.

FIRE DAMAGES MICHIGAN MILL.

Grand Rapids, Mich., April 17.—Fire damaged the plant of the Michigan Gypsum Company to the extent of \$20,000 recently. The principal damage was done in the warehouse of the plant. The work of rebuilding the destroyed part will commence immediately so that no delay will be caused in the operations of the company.

WASEM MILL NOW BUILDING.

Fort Dodge, Ia., April 21.—Work has been commenced on the erection of the new gypsum mill for the Wasem Gypsum Company. The plant is located on a farm owned by the Wasem family, and the company was organized some time ago by thirteen members of this family. The plant has trackage facilities on both the I. C. and C. & G. W. roads, and it is expected that it will be in operation some time this coming summer.

WILL MANUFACTURE PLASTER.

Cheyenne, Wyo., April 18.—The Western Building Material & Manufacturing Company, which recently erected a factory here for the manufacture of building materials, has secured 260 acres of gypsum property near Red Buttes, a place forty miles west of here. The company intends to mine the gypsum and manufacture it into plaster.

NEW MILL IN SOUTH DAKOTA.

Black Hawk, S. D., April 21.—The Dakota Plaster Company was recently organized for the purpose of producing and manufacturing plaster. The company has secured 200 acres of gypsum property in the Black Hills and intends to erect a plant for the manufacture of this product.

APPOINTED SALES MANAGER.

M. B. Jewett has recently been appointed manager of sales of the plaster department of the Cleveland Builders' Supply Company, Cleveland, Ohio. Mr. Jewett has been connected with the plaster business for a number of years with the leading concerns in the business and is up in all the new branches of the plaster business, such as the use of metal lath and wall reinforcing. The "C. B. S." hard wall plaster will be Mr. Jewett's specialty with his new connection at Cleveland. It is already an established brand having a large number of customers who consider it quite the thing.

WILL ENGINEER CONSTRUCTION OF PLASTER MILLS.

Youngstown, Ohio, April 19.—F. A. Jones, M. E., has removed to this place and will establish himself in the engineering business. Mr. Jones has been located at Oakfield, N. Y., and was general superintendent of the Niagara Gypsum Company's plant until April 1st. He designed and erected the plaster mill for that company and had charge of the operation of it until he left their employ. In the field he now takes up he will enter the plaster and Portland cement work, conducting the engineering and testing end of the business. Mr. Jones expects to equip an engineering office and laboratory in the near future.

PLASTER BOARD MILL NOW OPERATING.

Grandville, Mich., April 20.—The U. S. Plaster Board Company, whose plant has been closed down for the past three months, while undergoing extensive repairs, has reopened and is in full operation.

ANOTHER FORT DODGE MILL.

Fort Dodge, Ia., April 19.—The U. S. Gypsum Company are building a \$200,000 plaster mill at this place, which will be one of the most up-to-date plants of the large number that they have. It will have six kettles and the company expect to have it in operation by September 1. The construction will be entirely fireproof.

The Paragon Plaster Supply Company, of Scranton, Pa., has been incorporated with a capital stock of \$100,000.

The H. H. Dexter Plaster Company, of Cleveland, Ohio, has been incorporated with a capital stock of \$1,000. The incorporators are E. M. Moore, M. E. Ferguson, A. F. Counts, H. W. Ewing and E. S. Byers.

The McGraw Plaster Company, of Detroit, Mich., has been incorporated for \$10,000.

The New Century Wall Plaster Company, of Pierre, S. D., has been incorporated to manufacture plaster.

ALL THAT THE NAME IMPLIES

SECURITY

PORTLAND CEMENT

1909 - - 800 Barrels Daily
1910 - - 2000 Barrels Daily

Conclusive proof of satisfaction on Government, Municipal and private works in territory reached by us.



EVERY BARREL GUARANTEED.

Security Cement and Lime Company

Main Offices, 8th Floor, Equitable Bldg., Baltimore, Md.

The Ironton Portland Cement Co.Manufacturers of the
Celebrated Limestone Brand of Portland Cement

Used by the Railroads in Kentucky, Ohio, West Virginia, and Virginia during the past five years. Cement as finely ground as any on the market. Guaranteed to pass all the standard specifications.

Plant located at Ironton, O., within easy access to seven States, namely, Ohio, Indiana, Kentucky, West Virginia, Virginia, Tennessee and North Carolina.

Shipments via the N. & W. Ry., C. & O. Ry., C. H. & D. Ry., D. T. & I. Ry., or Ohio River.

Write for Prices

**The Ironton Portland Cement Co.**

Ironton, Ohio

**THE Standard Brands**OF
PORTLAND CEMENTLightest in Color
Highest Tensile Strength

ALWAYS UNIFORM
Always the same high quality. Prompt shipment guaranteed and made possible, as each mill is located within switching limits of the two greatest railroad centers of the West. You are assured of your orders being promptly filled.

SALES OFFICE:
Long Bldg., Kansas City

MANUFACTURED BY

Union Sand & Material Co.ST. LOUIS
Liggett Bldg.KANSAS CITY
Long Bldg.MEMPHIS
Tenn. Trust Bldg.

Tell 'em you saw it in ROCK PRODUCTS

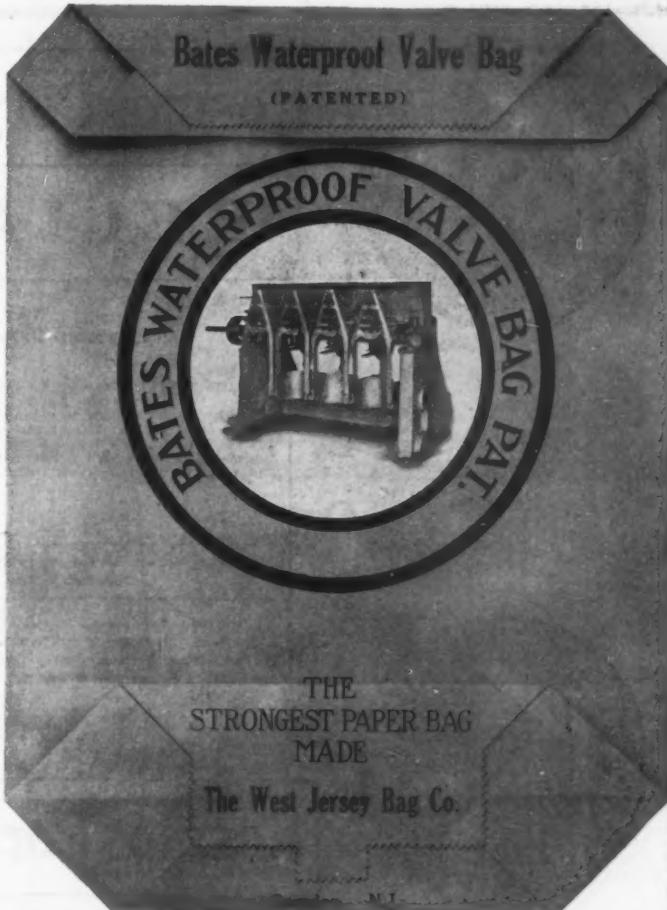


Do you realize the importance of uniformity in Portland cement? The fact that Universal is uniform means that it *always* acts the same under similar conditions; that it *always* sets properly; that its color is *always* the same popular greyish color and that it *always* produces the *same* sound durable concrete.

**Use Universal
—it's uniform**

**Universal
Portland Cement Co.**

Chicago — Pittsburg





SCENE NEAR LA SALLE, ILL.

Aqueduct on Illinois-Michigan Canal built in 1838; Illinois Central Railroad Bridge built in 1856; C. R. I. & P. Ry. Bridge, and La Salle Waterworks Buildings. All of these were built with Utica Hydraulic Cement exclusively.

Superiority and Economy

Utica Hydraulic Cement was used exclusively in constructing, in Chicago alone, over 1,000 miles of sewers, 80,000 manholes and 37,000 receiving basins connected therewith.

The Auditorium, the Board of Trade, Studebaker, Pullman, Chamber of Commerce, and in fact practically all of the prominent buildings in the City of Chicago have used Utica Cement. It is now being used even more extensively in the same class of work.

No other product can show such a record; more than 70 years of unbroken success. There is not a city of any prominence in our whole country but sings its praises. Architects and contractors know its merits. No chance should be taken. Don't fail to specify.

Utica Hydraulic Cement. No other material can compare with it. Its cost is less.

WE GUARANTEE EVERY BAG AND EVERY BARREL

Utica Hydraulic Cement Company, Utica, Ill.



MILL:
Kosmosdale,
Kentucky



Kosmos Portland Cement Co.

RELIABILITY

WAR DEPARTMENT
ENGINEER OFFICE, UNITED STATES ARMY.

Nashville, Tenn., February 20, 1909.

KOSMOS PORTLAND CEMENT COMPANY,
Louisville, Ky.
Dear Sirs:—Replying to yours of the 12th instant, I beg to advise you that our records show that 22,250 barrels of Kosmos cement were received at Hales Bar, Tennessee River, for the lock under construction at that point, between June 23 and September 25, 1908. All of this material was tested and all of it accepted under the requirements of the Engineer Department specifications.

Very respectfully,

WM. W. HARTS,
Major, Corps of Engineers

A Destructive Fire Prevented the Completion of the 100,000 Barrel Contract. The Rebuilt Mill is Fire-Proof.

It is universally recognized that no tests are more exacting than those of the War Department. A record of uniform acceptance, such as the above, is the best assurance to the purchaser of the unvarying quality of **KOSMOS** cement. It is a FACT—more convincing than any amount of TALK.

ASK FOR QUOTATIONS

Kosmos Portland Cement Co.



SALES OFFICE:
Paul Jones Building,
Louisville



Tell 'em you saw it in **ROCK PRODUCTS**

TWENTY LONG YEARS

of time and weather tried out Ricketson famous "Red Brick" Brand.

COLOR

for Mortar, Brick, Cement, Stone, etc., and proved it to be absolutely permanent. Red, Brown, Buff, Purple and Black.

Ricketson Mineral Paint Works
MILWAUKEE, WISCONSIN



Wade Iron Sanitary Mfg. Co.
MANUFACTURER OF

Wade Back Water Gate Valves, Clean-Out House Drainage Fittings, Iron Catch Basins and Cast Iron Covers, Etc.

Send for Catalogue.

Long Distance Phone, Harrison 6713.

43 E. Harrison Street, CHICAGO, ILLS.

MEACHAM & WRIGHT COMPANY
CEMENT
CHICAGO

**Superior Endures**

High magnesia menaces concretes, gnawing like a worm at the work. Superior has only a fraction of one per cent. It's safe. Booklet "C-7" tells how it is made, of what it is made, and why it will last for ages. Mailed on request. Have your eyes opened on the vital point of magnesia.

Mill at SUPERIOR, LAWRENCE CO., OHIO
Office and Sales Department
Union Trust Building, CINCINNATI, OHIO

The Superior Portland Cement Co.



"THE BEST IS NONE TOO GOOD
HIGHEST GRADE of
Portland Cement

Every Barrel Absolutely Uniform.

R. R. facilities especially adapted for prompt shipments in the northwest.

Capacity 1,500,000 bbls. Yearly.

NORTHWESTERN STATES PORTLAND CEMENT COMPANY
MASON CITY, IOWA.

RESIDENCE IN INDIANAPOLIS, IND., CEMENTED EXTERIALLY,

AND
WATER
PROOFED



WITH
MAUMEE
COMPOUND

THE MAUMEE CHEMICAL CO., 403 ST. CLAIR BLDG., TOLEDO, OHIO

Washed-Steam Dried and Screened

Ottawa White Sand

Unexcelled for { Facing Concrete Blocks
Ornamental Concrete Stone
White Plaster
Roofing
Exterior Plastering
Sawing Stone and Marble, Etc.

Analysis 99.88

Prices, Freight Rates and Samples on Application

You can order less than a car load, in fact Shipments as small as five 175 lb. bags can be delivered economically. Send an order for five bags and try facing your blocks with white sand. It will pay big.

The Only Standard Sand

Ottawa Silica Co.

Ottawa, Illinois

LARGEST SHIPPERS OF WHITE SAND IN THE UNITED STATES

Your Bag Repairing Reduced 90 %

Why bother sewing on patches, and then have stitches tear out, when by using

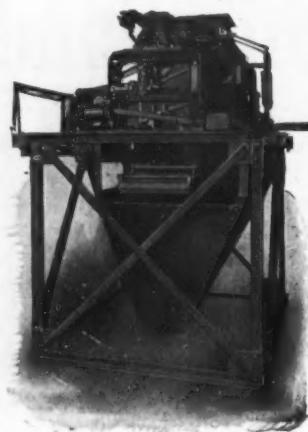
Little's Sac Paching Sement

You secure a permanent patch, better and more easily done.

**It is applied with a brush. Time of mending and money saved.
Isn't that economy? Write for further particulars.**

**The C. H. Little Company, DETROIT,
MICHIGAN**

**Contractors and Cement
Manufacturers Need**



RICHARDSON Automatic Scales

Because they will earn excellent dividends on important concrete construction work by accurately measuring the cement, sand stone and water in correct proportions by weight. Because in a cement plant they will give absolutely accurate proportions of the raw materials before mixing, a positive check on all coal received, the accurate weight of all coal dust delivered to kilns, the exact amount of clinker produced, the correct proportions of clinker and gypsum, a positive record of finished cement delivered to stock bins, and, finally, the dustless, accurate and rapid weighing and packing of the finished product into bags.

Richardson Automatic Scales are the World's standard for Automatic Weighing—more of them are in this country than all others combined. Shall we send the catalog?

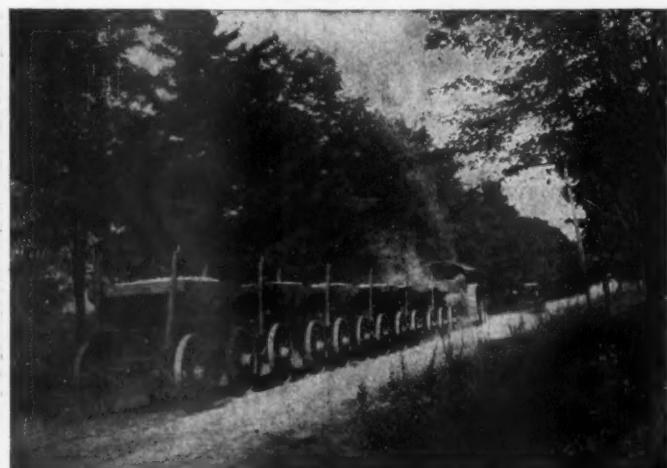
RICHARDSON SCALE COMPANY

7-8 Park Row, New York

122 Monroe St., Chicago

"He walked right in and he turned right around and he walked right out again."

But the trouble was in "turning right around". That was the trouble the traction engineman always had when hauling a train of dump wagons loaded with broken stone, until a dump wagon was invented that did not require turning around, but was like a freight car and would run equally well in either direction. It was a simple invention yet a great one—the invention of the



TROY Reversible Wagon for it solved the problem of economic hauling of stone for roadbuilding. After a wagon road is graded, say for a 16-ft. pavement of macadam, there is no room in which to turn a train of dump wagons around. You can turn the traction engine around and hook it on to the other end of a train of Reversible Troys—and there you are!

*Investigate now
by sending for
Reversible cata-
log No. 2-P.*

The Troy Wagon Works Co.

101 East Race Street, TROY, OHIO

Tell 'em you saw it in ROCK PRODUCTS



STRUCTURAL TILE.

Concrete Tile Made by the Pauly System Meets with Unequivocal Endorsement by Architects and Contractors.

Concrete structural tile manufactured under the Pauly patents has taken its place as a standard building material of the highest fireproofing and structural qualifications in many of the principal markets of this country. The volume of business of the concerns turning out concrete hollow tile is increasing with steady and healthy growth and the business has been extended to foreign countries. Reports from England, from the Island of Cuba and South America go to show that foreigners more readily recognize the intrinsic value of this wonderful material than American builders have and there can certainly be no complaint of the promptitude with which concrete tile has been and is now being accepted, specified and used in practically every type of building. It is found to be an ideal material for backing up stone or ornamental brick exteriors in steel framed structures. It is at once light, strong, flexible in application and cheaper on the job than any other obtainable material. Besides it has fire-resisting qualities superior to any other known commodity.

In the presence of such undeniable qualifications and adaptability in conjunction with pronounced economies at the job it is little wonder that the growth of the business has been so decided and regular. The business of manufacturing concrete structural tile under the Pauly patents is controlled in a way by the parent company to the effect of maintaining the high standard of excellence in the material itself that has been secured by all of the preliminary studies and after experimentation and practice of its projectors. As often stated in these columns this material has marked an epoch in the concrete industry which completes the range of its adaptability for all classes of building work so as to make it possible now to erect an entire building of concrete without employing any other material. This contributes to the concrete industry the advantage of employing the most perfectly-made concrete attainable to work in conjunction with buildings of fireproof concrete framing for curtain walls, for partitions, floors, roofs and every other portion of the building.

The sizes in which the tile are made have been carefully arranged to suit the requirements of modern business practice, and the amount of waste in purchasing tile for any particular job is actually a negligible item.

At last the homes for the masses can be made just as fireproof, durable and safe and practically at the cost of wooden inflammable buildings, which are a menace to life and a risk to property every day that they stand and are occupied by human beings. As this goods is now available in so many markets, the attention of builders, specifying engineers and architects is called to concrete structural tile, now generally available.

In all the many avenues of usefulness in which the concrete industry has been established there is none so important and at the same time beneficial to mankind as the practical introduction of fireproof homes. From the beginning of time to this age of concrete improvements, the human unit as expressed by the family have been forced to jeopardize their lives every day by living, working, and sleeping in houses built of fire-inviting materials. Long ago the concrete monolithic wall was known to be fireproof, but when the walls of a building alone are fireproof, it is of little avail, and has small effect against the danger element, and besides such a wall more fit in strength for a fortress is unnecessarily expensive for dwelling houses where such qualities are not called for or needed. In this case particularly the concrete tile exactly fills the bill, because it is cheap enough, amply strong, everlasting, and fire-resistant beyond all possible limits of danger. And besides all this, it is readily adaptable to the most beautiful lines and effects that can be devised.

Here is argument enough for every builder to give concrete tile careful consideration before buying the wrong thing if he must.

CONCRETE STREET PAVING A SUCCESS.

(Continued from page 3.)

the engineer. Broken stone, thoroughly cleaned of dirt, drenched with water but containing no loose water in the heap, shall then be added to the mortar in the proper proportion. The concrete will then be turned and mixed until each fragment is thoroughly coated with mortar.

9. The concrete thus mixed shall have such a consistency that when rammed the mass will not shake like jelly, but will when struck, compact within the area of the face of the hammer without displacing the material latterly.

10. The concrete thus prepared shall be placed immediately in the work. It shall be spread and thoroughly compacted by ramming until free mortar appears on the surface, which shall be made smooth and parallel to the surface of the finished pavement. The whole operation of mixing and laying each batch of concrete shall be performed in an expeditious and workmanlike manner and be entirely completed before the cement has begun to set.

11. No re-tempering of concrete will be permitted, and concrete in which the mortar has begun to set will be rejected.

12. The thickness of this concrete to be five inches after the same has been compacted.

13. Extreme care should be taken that the sub-grade is kept moist while this concrete is being put in place.

14. No concrete shall be laid when the temperature at any time during the day or night falls below thirty-five (35) degrees above zero, Fahrenheit.

Wearing Surface.

15. Upon the concrete heretofore specified shall be immediately laid a wearing surface two (2) inches in thickness to be made as follows: One part by measure of Portland cement, two (2) parts by measure of coarse, clean, sharp sand; the sand and cement shall be thoroughly mixed dry, on a tight floor, and then made into mortar of the proper consistency and thoroughly mixed over with hoes or shovels.

16. The mortar thus mixed will be immediately laid upon the concrete heretofore specified.

17. Before this mortar has begun to set it will be finished off to a smooth surface and corrugated according to the plans.

Corrugations.

18. After the wearing surface has been completed the same shall be corrugated at an angle of ninety degrees with the curb, said corrugations to be four and one-half by nine inches. The corrugations to be three-eighths of an inch in depth and shall be formed with proper tools made for the purpose, and when the pavement is complete the corrugations shall present a slightly rounded upper edge so as to provide a firm and substantial foothold for the horses, no sharp corners to be left.

19. The curvature and cross-sections of the pavement to be made according to the plans governing the same.

Requirements of Materials.

20. The cement used in the work will be submitted to the tests approved and recommended by the American Society of Civil Engineers which it must stand to the satisfaction of the engineer.

21. All Portland cement used in the work shall be Mason City Portland Cement or other Portland cement equally as good, which shall be protected from the weather, free from exposure to air slackening and from moisture until used.

22. The sand shall be clean, sharp sand.

23. The stone used for the concrete shall be of the best quality of hard limestone, or other stone equally as good, and shall be broken to such a size that the fragments shall not be larger than will pass through an inch and one-half ring and not smaller than a hazel nut. It shall be free from dust, dirt, loam or other objectionable material and shall be screened when necessary over a one-half inch screen to eliminate dust and small particles.

Expansion Joints.

24. An expansion of joint one inch in width shall be left next to the curb on each side of the street or alley, also an expansion joint one-half inch in width will be left every twenty-five feet across said pavement at right angles to the curbs. Said expansion joints are to be filled with an asphalt paving filler of proper quality and consistency approved by the engineer. It will be applied while heated to a temperature of about four hundred Fahrenheit, and shall be so applied that said expansion joints shall be thoroughly filled clear to the top of surface of said pavement.

Care shall be taken to obtain a surface free of ridges, at expansion joints, and depressions or unevenness in the surface, that will detract from its appearance, or cause water to lay on the pavement.

Any sections having such inferior surface will be rebuilt by contractor at his own expense.

Care shall be taken to make the expansion joints in such a manner that they are practically the same width throughout their depth.

Extreme care must be exercised in removing templets or divisions used to make expansion joints; the breaking out of any portion of the pavement, in removing such templets and forms will not be tolerated, and such damaged portions of the work, shall be torn out and replaced in good condition by the contractor at his own expense.

The contractor shall keep pavement sprinkled for one week after it is laid or longer if deemed necessary by the engineer.

CURBING.

Material.

25. The curbing shall be made of two parts, by measure of clean sand, the quality to be approved by the engineer, and one part by measure, of the best quality of Portland cement. It must be mixed and laid in the most approved manner. The curbing when done must be equal to the best class of work. All curbing must be five inches wide, twenty-two inches deep, and in sections not less than four feet long, unless otherwise ordered by the engineer.

Size and Setting.

26. The curb shall be set to the exact line and grades as given by the engineer, on a solid foundation, and the filling back of the curb shall be of good material and well rammed so as to hold the curb firmly in place; said filling shall be brought even with the top of the curb for three feet back from the curb unless otherwise ordered by the engineer.

Corners.

27. The curb shall be built on a curve at the corners of streets and alleys, and to be made of the same cross section as the curb described above, and to be laid in the same manner. The curves will be circular and of such radius as the engineer may designate. The curbing will be paid for by the lineal foot measured on the outside face along the top.

Old Curbs and Sidewalks.

28. Sidewalk disturbed by the contractor will be carefully relaid and repaired by him. The present curb, where of suitable size and material will be required to be readjusted to line and grade, and the



CONCRETE STREET PAVEMENT IN MASON CITY, IOWA.

ROCK PRODUCTS

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cost of all resetting of curb and relaying or repairing of sidewalks is to be included in the price bid.

Protection Curb.

29. The edges of the pavement at street and alley intersections and at all other places where necessary, shall be protected by plank curbing. Said curbing shall consist of sound plank three inches thick by twelve inches wide and not less than twelve feet long, with filling of good substantial material on the outside to hold plank firmly in place. The measurements and area of the paving shall include the three inch surface of such plank.

Tiling.

30. Should the bed of the pavement require draining in any place the drain will be used, and same shall be laid as directed by the engineer and paid for as extra work.

Bringing Castings to Grade.

31. The contractor shall bring to the surface of the finished pavement, without extra compensation, all castings or lamp holes, manholes, catch basins, flush tanks, or other sewer appurtenances along the line of improvement.

Paving Car Tracks.

32. Special brick blocks will be used adjacent to the rails of the street car tracks. They shall be made of a shape, size and shall be laid in the manner shown on the plans or as directed by the engineer. In case the street car company fail to pave the portion of the street included within the rails and one foot outside thereof on either side, the contractor shall, if so directed by the City Council, pave the said part of street at the same time according to plans adopted for same and shall receive the compensation as specified in the bid.

Space to Be Occupied.

33. The curbing and excavating must be fully completed at least one block in advance of the paving. No more than three blocks in length of the street shall be torn up, not more than one cross street closed at any one time, unless ordered by the engineer.

Payment.

34. Paving will be paid for by the square yard, and the price named in the bid will include all grading necessary to be done to bring the street to sub-grade as well as the concrete foundation and the pavement proper.

Affidavit.

35. Before final payment is made for this work, the contractor shall file an affidavit stating that he has not paid any money, directly or indirectly, to any city officer, or anyone connected with said work for services, or for special favors or for procuring said contract.

Schedule of Prices.

36. For work not required by the plans and specifications, where especially ordered by the City Council to meet unforeseen obstacles, the following prices shall be paid:

For timber work forming part of permanent work only, including all nails and framing for 100 feet B. M.....	_____
For rubble masonry, laid in cement mortar, per cubic yard.....	_____
For concrete, per cubic yard.....	_____
For cement curbing per lineal foot.....	_____
For sewer or water connections per lineal foot.....	_____
For brick masonry laid in cement, per 1,000 brick.....	_____

All Estimates of Brick Work Will Be Made at 15 Brick Per Square Foot of 8-inch Wall.

For earth work per cubic yard.....	_____
For broken stone for filling, per cubic yard in place.....	_____
For brick paving, per square yard.....	_____

All the work measured by the cubic yard shall be allowed at its actual cubical contents, only no customary measurements being allowed in any case.

THE LARGEST CONCRETE BRIDGE.

From far-off New Zealand one of our subscribers challenges statements made in recent numbers of Rock Products with regard to the Rocky River bridge at Cleveland and the Wissahickon bridge at Philadelphia as the two largest concrete bridges in the world. He claims for Auckland, N. Z., the remarkable distinction of having the largest concrete bridge which is known as the Grafton bridge spanning a canyon in the environs of that city.

The bridge was designed and constructed by the Ferro Concrete Company, of Australia, and Wilson Brothers Portland cement was used, which is manufactured in Auckland, N. Z.

The bridge is described in detail as follows:

The bridge consists of one central span with two approaches, of which the western is of two spans of 35', and four of 75', and the eastern is of three spans, two being of 83' and one of 42'. The bearing plates for the girders are fixed on the piers, with ample room for expansion.

The two main piers completing the approaches stand 100', and are cylindrical, the walls being from 12" to 8" in thickness. On the top or head of the pier curved cantilever brackets carry the footpaths over the piers, and serve to embellish the pier heads. The piers are really built on three walls, and between the walls sit the abutments, being entirely independent of the piers. Into the abutment is fixed a thrust plate or steel grillage set to an angle normal through the line of thrust, and upon this plate rests a hinge supporting the whole arch.

The arch span is 350', and is three-hinged. It consists of two ribs ranging from 6' at the abutment to 9'-6", graduating to 5' at the crown. These huge ribs are tied together by beams, which act also as wind braces.

The height from the deepest part of the gully is 147', the width of the structure is 37' over all, including the roading and footpaths, the road being 24' and the paths 12' each.

The parapet is concrete 4'-9" high, and carries twenty-six lamp posts, lit by electric light. The curbs of the paths are of Coromandel granite, and the grade of the bridge is one in seventy-four, with a total length of 950'.

The superstructure consists of T-shaped piers, this form being selected for its lightness; the longest pier is 80', and the whole is braced by two T-shaped beams. These piers are constructed on arched rings at 21' centers, and support main girders, the girders carrying the secondary beams of the roading and footpaths.

The decking of the roadway is 6" thick, and is to receive a layer of 1½" Neuchatel asphalt. The footpaths are 4" thick, and will receive a finishing layer of 1½" concrete.

The whole construction is of reinforced concrete, the aggregate being made principally of a lava rock and volcanic ash indigenous to the country.

STEPPING STONES TO SUCCESS.

Make your pennies count and the dollars will come.

Make your courage equal to your strength. They are both needed.

Make the most of your opportunities. They are too precious to be wasted.

THE FISH FIRE.

The Old Story of Locking the Barn Door After the Horse Is Stolen—Solution of the Problem Lies in Concrete Construction.

About the close of the month of March, to be exact on the 26th, Chicago was thrilled with the flaming headlines in the daily prints about a Wabash Avenue fire which destroyed a furniture warehouse and repairing establishment in which twelve human lives were sacrificed and about \$400,000 worth of invested property was wiped out. The building in which the fire occurred was eighteen years old and had undergone no less than three or four radical remodelings.

Immediately after the fire and holocaust the building was designated as a fire trap, and the trouble with such verdicts, which occur every day of the calendar year, is that such buildings are not considered fire traps until after their destruction and the attendant loss of property and human lives. The fact of the matter is that the building in question, which was located in the heart of the business district of the city, was a fire trap from the time it was built, covering a period of eighteen years, and the denouement only became apparent when



IMMENSE CONCRETE SPAN AT GRAFTON, NEW ZEALAND.

Make men have confidence in your ability and your integrity.

Make your work so good that it will be valuable to any employer.

Make light of your disappointments, and lighter of your successes. They are to be used, not to be dwelt upon.

Make your work accurate. If the foundation is not solid the structure is not safe.

Make men respect you rather than fear you. Respect always outlives fear.

Make your work helpful to others if you want it to be helpful to you.

Make the smallest task worth while and the big things will come without your hunting for them.

Make your success through your own ability instead of through another's folly.

Make the end of your work as good as the beginning. Don't forget the last stroke can spoil the job.

Make no one responsible for your shortcomings but yourself. You are the master of your work.

Make yourself and others realize you are in the world because you are a man.—Chicago Tribune.

the trap was set off. This applies to every other case in which the term fire trap is used and leads to the conclusion that there are thousands of fire traps in all of the big cities that are only waiting to be set off in the same way and thus lead to a public discovery of their actual character.

When the building occupied by the Fish Furniture Company at the time of the fire was constructed there was no such thing as fireproof types known to the building trades or to the architectural or engineering professions. It was built during the period when that mythical type of building known as slow burning mill construction was considered something better than the ordinary. Experience has demonstrated that the so-called slow burning mill construction has made some of the fastest fires on record and nearly all of them are consumed fast enough to make it impossible for numbers of the occupants to make their escape with their lives, as it was in the case in question.

Long after this building was constructed, electric conduit wires, telegraphic wires, trolley wires and all of the overhead paraphernalia of modern urban accommodations were erected, so that the building, which may have been as safe as its neighboring structures at the time of its erection, presented a very difficult problem to the use of modern fire apparatus and although the fire occurred in broad daylight and during business hours, when the entire population of the district were at their posts of duty and ready to assist their fellow creatures, twelve of the employees in this business building in the heart of Chicago were consumed before their eyes and the helpless fire experts and spectators.

In the first few hours after the holocaust, idle attempts were made to fix the blame for such a catastrophe upon some tangible and responsible parties, but the fact of the matter must stand forth that the blame is directly chargeable to the willful

The Pittsburgh Testing Laboratory, with general offices at 325 Water Street, Pittsburgh, Pa., announce that on account of the rapid growth in their cement testing department they have recently opened cement laboratories, with full facilities in charge of competent cement chemists and cements testers, at 511 Omaha Building, Chicago; also at 305-306 Praetorian Building, Dallas, Texas. They also have cement laboratories at Easton, Pa., Pittsburgh, Cincinnati, Birmingham and San Francisco, as well as cement chemists located at a large number of the different cement mills, and that they are prepared to test cement either in their laboratories or to make mill inspection of cement at any of the leading cement mills.

ignorance of the American public with regard to fire protection in the shape of fireproof construction which is now attainable and quite as cheap as the dangerous and criminal kind that obtained a generation ago. At the time of its construction this building was probably just as good and just as safe as the knowledge of such matters at that time and consequently no blame attaches to the builder.

The fire department of the city of Chicago is second to none in the world, both with regard to its equipment and to the personnel of the men who are in charge of its practical operations and the men of the line who do the work. It is certain that in this case as well as in every other where they are called upon to practice the profession of extinguishing fires and saving lives that they did all that was possible for any such organization with every appliance and equipment that money can buy could have done elsewhere. The limit of human skill and human bravery was simply of no avail, so that no blame attaches to the Chicago fire department.

In no city of the world is there a better organized or more efficient building department, both with regard to the inspection of buildings already erected and the providing of safeguards for new buildings. This department here, as elsewhere, is confronted with the impossible obstacle of accepting present construction practically as it stands without the power to enforce the improvements and alterations which they could devise and short handed with regard to competent inspectors, so that the apparent inefficiency of the service is no fault of the competent men in charge of the department who are doubtless prepared with recommendations which if adopted and installed would prevent any such casualty in the future.

Again no fault can attach to the building department of the city of Chicago, for their power is too limited and their force too small to cover such a great responsibility with such an infinite amount of detail attached.

The occupants of the building in question, being more familiar with its entire details and in daily contact with their own operations, certainly lacked judgment and appear to be totally ignorant of the necessary precautions to safeguard the lives of those in their employ. Every employee of a business establishment must be considered as one of its responsibilities. No group of men can be considered capable of conducting a large commercial establishment who are not equipped with sufficient general knowledge of the responsibilities of life to observe the indispensable precautions necessary for the protection of the lives and safety from injury of their employees. There is no question that if the occupants of the building that was destroyed had foreseen the danger or given even a slight attention to their responsibility that a better provision for escaping the fire danger could have been provided at small cost. So much blame at least attaches to the establishment that occupied and used the building and employed the people whose lives were lost.

The fact that a large portion of their furniture and investment was wiped out at the same time by fire clearly shows that these men are not up to the times or capable business men of the twentieth century and they are the kind of back numbers which make legal restrictions, legal inspections and legal control necessary to provide against wilful ignorance, which is the next thing to crime in such a case.

Such lessons as these occur day by day, but the public learns little thereby, for the reason that a many sided discussion takes the place of calm and deliberate judgment and we shall continue to discover unseen fire traps and the loss of property, and the sacrifice of human lives will continue just so long as this pernicious habit prevails.

There is just one remedy, just one way, to eliminate all such difficulties and now and for all future time the blame and responsibility for such casualties as that which occurred at the fire of the Fish Furniture Company can be stated as follows:

The owner of a building who erects it in such a manner that it cannot be burned or demolished by fire through the burning of its structural parts is directly responsible for the loss of every human life that occurs in such a building. The architect or engineer who designs or recommends a building to be used for factory, warehouse or other purpose where human beings congregate to perform their labors or dispose themselves in any way is criminally responsible for the loss of life that may occur in such buildings, because such engineer and architect cannot fail to be well aware of the achievements of the concrete industry, which offers a complete and perfect route against such catastrophe. The building department being fully advised in the same way would be equally responsible and equally criminally reliable. If the occupants

of the commercial buildings insistently demanded that their premises be nothing less than fireproof concrete construction it would be of tremendous assistance in promptly bringing about the necessary changes and improvements. In fact the failure of the users of commercial buildings to take such steps practically amounts to criminal negligence in this day of liberty, free education and careful instruction along the very lines as stated. In spite of all this at the very moment that these lines are being written there are numerous buildings being constructed in the very heart of the congested business district of the city of Chicago which are quite as vulnerable to fire as was the Fish Furniture Company's building and which cannot be considered other than present additions to the long list of future fire traps which will just as certain as time rolls around similarly be described with flaming headlines in the daily papers as newly discovered fire traps with the attendant harrowing details which were recorded in connection with this fire and thousands of more exactly like it in all of the cities and larger towns of this country. There is no question that these buildings now being erected for which the permits have been issued (probably over the protest of the building department) and designed by architects who know just how vulnerable they are to fire (but whose studies of ancient antecedents keeps them averse to modern improvements as presented by concrete construction) and owners who do not care, but refuse to accept the responsibility which, according to our lax methods, has never been made applicable upon a financial basis. Every one of such buildings now under construction and those which shall be constructed in all future time of inflammable materials are nothing short of criminal operations and should be stopped by the strong arm of the law which is the first indisputable axiom of the rights of men, namely, self preservation and the charitable preservation of the lives of others.

The concrete industry has achieved this one crowning benefit to mankind, which will apply to all future ages, namely, the possibility of constructing every type of building in such a way that the fire risk to property and the high fire hazard to human life can be entirely eliminated. Now it is merely a matter of applying a well known and well tried practice in construction. It is no longer a matter of a difference in cost, but the employment of sufficient intelligence to select the new achievements in construction, which crowns the advancement of the twentieth century beyond anything else that our civilization has ever known, so why will we or any of us permit combustible buildings to be erected in the congested districts of American cities? Surely in Chicago, which already has on record one of the most terrible examples of history, no such holocaust should be necessary, but with one glance at the demolition of 1871 the builders of this city at least should fly to the only citadel of refuge that has ever been prepared for the builder who wills to be safe from fire.

The Realty Trust Co., Edwin P. Ansley, president, Atlanta, Ga., has plans for construction of 20-story fireproof, 80 by 150 feet, office building; 20 stories and 7-story tower, in addition to basement and sub-basement. Cost, \$1,250,000; completion in eighteen months; proposals received in ninety days. A. Ten Eyck Brown, Atlanta, architect.

CONCRETE GRAIN STORAGE.

Model Mill Company of Johnson City, Tennessee
Erect Building in Record Time.

Reinforced concrete is rapidly replacing other materials in the construction of grain elevators and smoke stacks. No other form of construction offers such strength, permanency and safety as does concrete. Especially is this true in the storage of grain, as nothing protects it from loss better than concrete. With such durable material, grain storage tanks do not require constant repairs; in fact, there is practically no money spent on the cost of maintenance or repairs. Again, with this type of construction the products stored are immune from fire, at least, less liable to be set on fire from outside causes than would ordinarily occur in using wood for constructing the building. The first cost of the building is no more expensive than the ordinary type, which has been used for so many years, and when one considers how much better the reinforced concrete is and how much more durable, it is inconceivable why every concern which desires to erect a building should use anything but concrete.

The Model Mill Company, of Johnson City, Tenn., were progressive enough when they wanted to build a new storage elevator and smoke stack to decide in favor of using reinforced concrete construction. They awarded the contract for designing and erecting the building to the MacDonald Engineering Company, of Chicago.

The elevator has a storage capacity of 50,000 bushels and consists of ten circular bins twelve feet in diameter and fifty feet high, each holding 440 bushels. The interspaces between the cylinders are also used for storage and each holds 1,200 bushels. The building is intended for the storage of grain to be used in the business of the Model Mill Company. The grain is received by suitable elevator machinery at the mill and transferred through an overhead gallery into the storage bins by means of screw conveyors. As the grain is required for milling purposes it is returned to the basement of the mill by means of screw conveyors constructed in a tunnel, formed in the foundation under the bins.

The walls of the cylinders are reinforced with one-half inch twisted rods. The windows are made of metal frames and sash and glazed with one-quarter inch glass. No wood of any kind has been used in the construction. Certainly the building has been constructed with the highest efficiency in regard to fire resistance, strength and durability.

The concrete smokestack is 148 feet in diameter and 100 feet high. It was erected complete, including the foundation, in ten days.

The building was erected complete and turned over to the owners for operation in sixty days after the work was commenced. The walls of the bin story alone required only ten days for erection.

Besides using concrete in the foundation, bins and cupola, the gallery and tunnel connecting the storage with the mill building are also of the same material. Superior Portland cement was used in the construction of the building and was sold to the contractor by the Summers-Parrott Hardware Company, of Johnson City, Tenn.



CONCRETE GRAIN STORAGE TANKS OF MODEL MILL CO., JOHNSON CITY, TENN.

ROCK PRODUCTS

APRIL 22, 1910.



SECOND ANNUAL

Convention and Show of the Canadian Cement and Concrete Association Held at London, Ontario, Proves a Success.

The second annual Canadian Cement and Concrete Association Convention was held at London, Ontario, March 29th to April 1st. On account of the location of the convention, the attendance was very disappointing. There was considerable feeling among the cement users against going to London, and this kept most of these people away. Otherwise, the convention was quite a success from every standpoint. There was an especially large number of papers read on the various uses of cement and concrete construction, and these were well handled by the speaker in each case.

The formal opening of the convention was held on March 28th at the Princess Rink, when Mayor Beattie made the address of welcome. The evening was reserved for a reception of the citizens of London by the members of the association.

The convention opened on March 29th at 2:30 o'clock. President Peter Gillespie, of Toronto, made his address to the association. This covered the work that the association had done since it had been organized, in which he announced that a permanent secretary had been secured, and that the work of the association was attended to by a man who gave his entire time to it. He also said a committee on Standard Specifications had been at work and would report during the meeting. Fire losses in both the United States and Canada were given, and he closed his remarks by giving a very interesting talk on the "Use of Concrete as a Substitute for other Building Materials."

Secretary R. E. W. Haggarty then read a paper entitled "The Use of Concrete in Dwelling House Architecture," which had been prepared by Ernest Wilby, an architect of Detroit, Mich.

This was followed by a paper by R. A. Plumb, of Detroit, Mich., on "Waterproofing Methods and Materials."

F. S. Baker, F. R. I. B. A., made an address in the evening on "Use of Cement in Architecture," in which he spoke very highly of Portland cement for exterior treatments.

After this paper considerable discussion ensued on the packing of cement at the factory. Several spoke on this subject, some maintaining that the package should have marked on it the date of manufacture, and others that a public testing laboratory should be maintained.

The morning session of March 30th was taken up with the report of the Committee on Standard Specifications, and composed of Peter Gillespie, Gustave Kahn, C. R. Young and R. E. W. Haggarty.

The draft of the resolutions presented by the committee was finally adopted by the association. These will be printed in due form and distributed among the municipal governments of the country.

The association has also adopted the specifications of the Canadian Society of Civil Engineers for Portland cement.

The afternoon session of this day was taken up with a paper by A. W. Connor, of Toronto, whose subject was "Concrete Bridges." This was followed by a paper on "Analysis of Concrete Bridge Failures," by C. R. Young, of Toronto.

The evening session was devoted to an address by Charles Talbot, County Engineer of Middlesex, and James Pearson, of Toronto. A. W. Campbell, Deputy Minister of Railways and Canals, Ottawa, read a paper entitled "The Engineer and the Finished Work."

Immediately after the evening session, a number of visitors at the invitation of Gustave Kahn, adjourned to the London Club and an impromptu concert was given and some excellent speeches were made. Among those who spoke were Prof. Gillespie, Alderman Ferguson, Alfred Rogers and L. V. Thayer, of Minneapolis.

The election of officers took place on March 31st, and resulted in the following being chosen: Peter Gillespie was reelected president, and R. E. W. Haggarty secretary. W. Fry Scott, of Toronto, was chosen vice-president. The other members of the new executive committee are: Gustave Kahn, Toronto; T. L. Dates, Owen Sound; W. H. Ford, Canada Cement Company; C. R. Young, Toronto; D. C. Raymond, Toronto; James Pearson, Toronto; W. Scott Roman Stone Company, Toronto; C. F. Pulfer, London; Kennedy Stinson, Montreal; A. E. Uren, Toronto, and I. S. MacDonald, Toronto.

The committee brought in the following recommendations, which were adopted:

"That the convention consider the advisability of limiting the number of councilors to twelve, eleven being nominated in accompanying report, the twelfth to be an architect of first-class standing, to be appointed by the executive."

"In the opinion of this committee the permanent secretary, Mr. Haggarty, should be appointed to the position of treasurer of the association, and the office of chairman of finance be eliminated."

"This committee further recommends that the appointment or election of an honorary president be considered by the convention, and that the executive be instructed to appoint an honorary president to act for the coming year."

The session in the afternoon was devoted to a number of papers.

Richard L. Humphrey, president of the National Association of Cement Users, gave a talk on "Concrete in Europe," which were the observations made by him in his recent visit to that country.

Professor W. H. Day, of the Ontario Agricultural College, Guelph, read a paper on "Some Experiments with Cement Tile."

P. L. Wormley, Testing Engineer at Washington, D. C., read a paper on "Uses of Concrete on the Farm."

A. G. Larsson, chemist, read a paper on "The Hardening of Portland Cement."

An informal luncheon took the place of the annual banquet. It was held at the Tecumseh Hotel on Thursday evening, and proved a very enjoyable affair.

The closing session of the convention was on

April 1st, and the papers read were by Gustave Kahn on "The Commercial Aspect of Reinforced Concrete in Canada"; "Concrete from the Contractors' Standpoint," by D. C. Raymond, of Montreal.

The convention then adjourned.

THE EXHIBITS.

The exhibition was held in the Princess Rink, and many interesting exhibits were shown.

L. V. Thayer, of the Peerless Brick Machine Company, of Minneapolis, Minn., was in charge of the Peerless brick machine exhibit.

The Merillat Culvert Core Company, of Winfield, Iowa, had an exhibit of their adjustable culvert core, which attracted considerable attention at the Chicago Cement Show.

The Canada Foundry Company, Limited, of Toronto, had a No. 1 Koehring concrete mixer on exhibition.

The United States Gypsum Company, of Chicago, had samples of the rock from which their plaster is made, as well as a number of interesting photographs of their mines and mills.

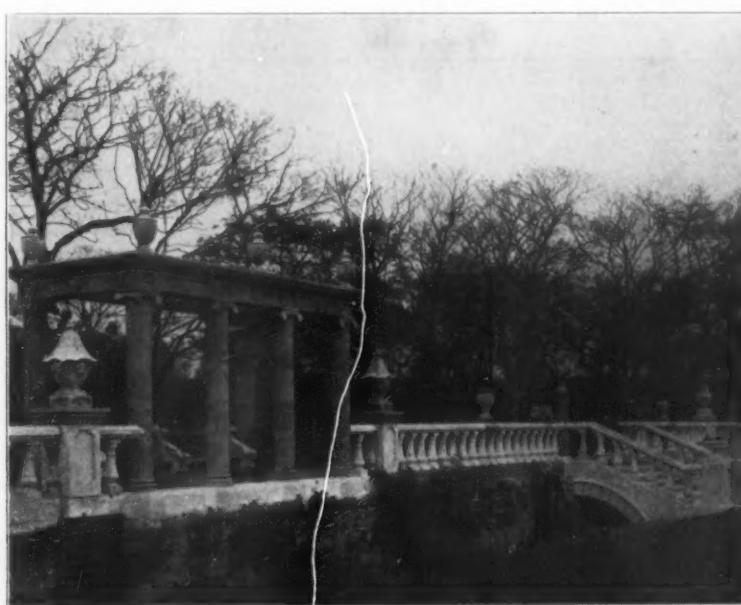
The Roman Stone Company, Limited, of Toronto, had an exhibit in charge of A. J. Aldington. Roman stone has become quite an important factor in building in Canada. A number of interesting pictures were shown of buildings in which this material has been used.

J. T. Hepburn, of Toronto, exhibited the "Little Wonder" cement block machine. He also had a New State concrete mixer, of which he is the Canadian agent.

The following is the list of attendance:

Peter Gillespie, Toronto.	R. E. Waltham, Kerrwood, Ont.
R. E. W. Haggarty, Toronto.	John A. Watson, Laskay, Ont.
Percy H. Wilson, Philadelphia, Pa.	H. U. Bedell, Picton, Ont.
A. W. Connor, Toronto.	Robert Oliver, Listowel, Ont.
Charles Talbot, London, Ont.	A. Grosch, Listowel, Ont.
James Pearson, Toronto.	J. G. Wilson, Burlington, Ont.
R. L. Humphrey, Philadelphia, Pa.	A. G. Larsson, Owen Sound, Ont.
John S. Gray, Woodstock, Ont.	R. E. Holliday, Toronto.
S. Macdonald, Toronto.	W. F. Scott, Toronto.
J. H. Parke, Toronto.	Wm. Tytler, London, Ont.
Chas. Wonever, Montreal, Quebec.	A. J. Cromar, Brantford, Ont.
William Crellin, Kintore, Ont.	A. G. Gillies, Glencoe, Ont.
F. J. Ure, Woodstock, Ont.	O. W. Jersey, Forest, Ont.
R. K. Beecraft, Nixon, Ont.	Harry Boyd, Osgoode, Ont.
C. Crowley, Stratford, Ont.	A. E. Nutter, London, Ont.
J. H. Chubb, Chicago, Ill.	G. Kinsey, Port Elgin, Ont.
J. A. Douglass, Alliance, Ohio.	A. F. Wells, Toronto.
John Stewart, Blyth, Ont.	H. A. MacLean, Sarnia, Ont.
Dr. S. Woolverton, London, Ont.	W. M. Gray, London, Ont.
	John Dunbar, St. Marys, Ont.
	Harold R. Watson, Laskey, Ont.
	R. A. Plumb, Detroit, Mich.
	G. W. N. Day, Toronto.
	F. W. Scherbarth, Toronto.

The Higgins-Albers Concrete Form Co., of St. Louis, Mo., has been incorporated for \$100,000. The incorporators are: R. B. Higgins, Herbert Albers and John A. McKinney.



CONCRETE PERGOLA EST. SIR HEDWORTH WILLIAMSON, COUNTY DURHAM, ENGLAND. BUILT BY WILLIAM SEWELL, SUNDERLAND, ENGLAND.



ORANGERY EST. SIR HEDWORTH WILLIAMSON BART, SUNDERLAND, ENGLAND. BUILT BY WILLIAM SEWELL, SUNDERLAND, ENGLAND.

ROCK PRODUCTS

RECEIVED THIRD PRIZE.

We are showing two reproduced photographs of an orangerie and pergola on the estate of Sir Hedworth Williamson, in England, which received the third prize in the contest which was conducted at the recent Chicago Cement Show amongst the users of the machines built by the Century Cement Machine Company, of Rochester, N. Y.

William Sewell, the superintendent and manager of the Williamson estate, is an engineer of considerable distinction and one of the staunch friends of Rock Products. In the application of concrete to many uses, both for ornament and for permanent improvements, Mr. Sewell is far ahead of all others in England, and indeed we know of none elsewhere who have achieved such splendid results. The orangerie illustrated is a bit of artistic and ornamental work which constitutes a very small part of the concrete work which Mr. Sewell has installed in the Williamson estate.

THE LADY WHO WON THE PRIZE.

As a result of the co-operation of the management and the exhibitors at the Third Annual Cement Show, which was held at the Coliseum, February 18-26, the materials for a concrete house were given away to the woman who guessed nearest to the total number of attendance for two days of the show.

The prize was won by Miss Lillian H. Williamson, 6451 Marshall Avenue, Chicago, a stenographer in the West Englewood Bank, 1537 West 63rd Street. Her guess of 15,960 admissions was about right, being within five of the exact number. As a result of making the nearest correct guess, Miss Williamson will receive the materials, plans, specifications, decorations, tile work, trim, etc., for a modern \$5,000 house, and incidentally a husband, for she received some twelve hundred proposals from admirers of the cement house.

Over a score of exhibitors co-operated in furnishing the cement, reinforcing material, lime, sand, brick, tiling, interior finish, decorations, plans, specifications and other accessories needed in the building of the house. The following companies offered to lend their assistance on the various parts of the construction of the cement house:

Radford Architectural Co.—Full and complete working plans and specifications.

Percy H. Wilson—Engineering services.

Chicago Portland Cement Co., Marquette Portland Cement Co., Lehigh Portland Cement Co., Wolverine Portland Cement Co., Universal Portland Cement Co.—Portland cement.

Hydrolithic Cement Co., George W. De Smet, A. C. Horn & Co.—Waterproofing.

Corrugated Bar Co., American Steel & Wire Co., F. P. Smith Wire & Iron Works—Reinforcing.

Illinois Improvement & Ballast Co.—Sand and gravel.

U. S. Gypsum Co.—Plaster.

Kelley Island Lime & Transport Co., Marblehead Lime Co.—Lime.

Wisconsin Lime & Cement Co.—Five hundred feet of Beaver board for dining room.

Ideal Concrete Machinery Co.—Use of machines.

Peerless Brick Machine Co.—Use of Peerless brick machine.

W. E. Dunn & Co.—Use of chimney molds for chimneys.

Miracle Pressed Stone Co.—Use of molds.

Deitrichs Clamp Co.—Clamps for forms.

Chicago Builders' Specialty Co.—Corner beads, metal wall plugs, anchor sockets, use of Aeme bar bender.

Decorators Supply Co.—Cement ornaments.

As a location has been secured, the house will be constructed some time during the early part of the summer.

CEMENT BLOCK MEN ORGANIZE.

Newark, N. J., Apr. 18.—Cement block manufacturers of this city and vicinity met in the Union building yesterday afternoon and organized an association with the object of mutual benefit. The following were elected as officers: President, Samuel Wachstein; vice-president, Frank R. Beach; secretary, Ray F. Brocks, and treasurer, A. Bane.

CHANGE IN NAME.

Fargo, N. D., Apr. 17.—The Anchor Cement & Stone Co. has changed its name and is now the North Dakota Engineering & Contracting Company. The company has its plant for the manufacture of concrete blocks at Front and Twelfth Streets, and it is a well equipped establishment. Besides the manufacture of blocks, the company does a general contracting business. E. J. Chilson is the general manager and W. H. Aymer is secretary and treasurer.

CONCRETE IN FREEZING WEATHER.*

By George Deickmann.

One of the most valuable properties of concrete or cement mortar is that it is not affected by frost after attaining its setting time. It is a well known fact that the temperature has a great influence on the setting and hardening of cement and concrete. A high temperature will accelerate the setting and a low temperature will retard the same, even a difference of ten degrees might change the setting time to quite an extent. The prevention of concrete from becoming frozen before it has had time to harden should be more fully investigated. It has been found that some concrete which was made at a freezing temperature has not shown any defects, while on the other hand concrete made under similar conditions became disintegrated and worthless.

It has been recommended that the materials be heated, especially the sand and stone, and also to use warm water. The use of soda ash, and chloride of calcium mixed with the water is also advocated. The warming of the materials is frequently used, but it is practically impossible to heat and mix a large body uniformly; the application of warm water is more practical. The addition of salt dissolved in the water seems to be of advantage for preventing freshly mixed concrete from freezing.

The following series of tests have been made to ascertain the amount of salt which might be used without affecting the strength of the concrete and are made in six different series which are designated by the letters A, B, C, D, E, and F, each of this series consists of five different tests which are designated by the numbers 1, 2, 3, 4, 5, and are made on briquettes of 2, 7, 28 and 60 days on neat cement and mixtures of 3 parts standard sand and 1 part of cement, using Northwestern States Portland Cement and making a total of 480 different briquettes.

I will not go into these tests in detail as it would take too long a time to do so, I will give briefly the results of each series and as the 60-day series are still under observation I will give your secretary a full report after the completion of the tests.

The series A was made at normal temperature and

1 per cent salt 245, for 7 days without salt 277, and for 7 days with 1 per cent salt 390. At 7 and 28 days the results without any salt are about the same, which is most noticed in the sand mixtures. The 60-day tests which are still under observation will probably show the same facts.

The series D was made at freezing temperature, all materials and water were warmed up to about 75 degrees. The briquettes were stored in air at freezing temperature. The addition of 1 per cent salt showed a high increase in strength as in series C, however it was expected that the results on this series would be higher, as the materials were all warmed which naturally accelerated the setting time and gave a higher strength for the early stages, but such was not the case and might be explained by the fact that the temperature being at the freezing point the materials were cooled quickly to the temperature of the atmosphere, which conditions would also exist in practice and the warming of the materials would cause a good deal of expense and delay without paying results. Of course the materials should never be used in a frozen condition, the sand should be warmed to drive out the frost and it is advisable to store the aggregates ahead in a suitable storage building.

The series E was made at freezing temperature, all materials and water were warmed to about 75° F. Briquettes were stored in air at freezing temperature for two days and then subjected to constant freezing and thawing for twelve hours each day until seven days, the remaining time stored at freezing temperature. The addition of salt increased the strength for the first two and seven days. The alternate freezing and thawing affected the strength in all neat cement briquettes at seven days and decreased at twenty-eight days over the seven day briquettes, showing the freezing temperature retarded the crystallization. The sand mixtures without salt and with 1 per cent salt show no effects on seven days and increased at twenty-eight days in a satisfactory manner, while the sand mixtures with 2½, 5, and 7½ per cent salt show a marked decrease after twenty-eight days over the seven day briquettes.

Series F was made in the same manner as series E, subjecting to alternating freezing and thawing, but instead of storing the briquettes after seven days in freezing temperature the briquettes of this series were stored at about 80° F for the twenty-eight and sixty day tests. Up to seven days this series was treated under the same conditions as series E and tests show the same results. At twenty-eight days this series showed a general increase over the seven day briquettes, the addition up to 7½ per cent of salt showed good results here.

The sixty day tests which are not out yet will be of interest in these two series and will show if constant freezing will retain crystallization.

From these tests it seems that frost affects the hardening of neat cement, especially in the early stage, but with the addition of from 1 to 2½ per cent of salt the cement showed good results. Neat cement is never used alone for practical purposes, but these tests are of interest to better understand the action of concrete and to form a better knowledge.

Slight frost does not seem to affect concrete mortar to any marked degree. The addition of from 1 to 1½ per cent of salt is of advantage, but over 2½ per cent there is a marked decrease of tensile strength, also the excess of salt is deposited as a white precipitate on the surface and the mortar has a dead unpleasant color. It follows that if salt is added to prevent freezing the amount ought to be weighed and dissolved in a measured volume of water which should be reduced as much as possible and practicable.

The Hobbs Concrete Machinery Co., of Detroit, Mich., has been incorporated for \$5,000. The company will manufacture concrete working machinery.

The Monticello Cement Tile Co., of Monticello, Ind., has been incorporated for \$15,000. The incorporators are: J. S. Sandy, J. N. Cash and M. E. Sluss.

The Altus Hydraulic Stone Co., of Altus, Okla., has been organized by the following: M. A. Snyder, W. A. Davis and J. P. Orr.

The Northwest Cast Stone Block Co. has been organized at St. Paul, Minn., by H. C. Wright, R. M. Neely and Robert Goodchild. The company will manufacture concrete products. It is located at La Ford and Chatsworth Avenues.

The Acers Mollow Concrete Post Co., of Oklahoma City, Okla., has been incorporated for \$40,000. The incorporators are: J. W. Graves, A. D. Score, R. C. Acers and J. E. Mars.

The New Jersey Cement Stone Works, of Passaic, N. J., has been incorporated for \$20,000. The incorporators are: H. Danielson, G. D. Bogart and Elizabeth Hultse.

A company has been organized by C. M. Heppler, Will Frederickson, Emron Wright and Andrew Peterson, all of Richfield, Utah, for the purpose of manufacturing concrete blocks.

The concrete products plant of S. Elliott, at Tampa, Fla., was destroyed by fire recently. The loss was \$6,600.

D. R. Hill is erecting a building 36'x90' at Bonesteel, S. D., where he will manufacture concrete blocks.

Schlemme & Nieland have started a cement block factory at Monce, Ill.

MISS LILLIAN H. WILLIAMSON, CHICAGO.



with the materials and water having normal temperature. The resulting briquettes were stored in air at normal temperature for 2, 7, 28, and 60 days. The different tests which are numbered are arranged by numbers. No. 1 has been made on material without the addition of salt, No. 2 has 1 per cent of salt added, No. 3 has 2½, No. 4 has 5 per cent and No. 5 has 7½ per cent. The addition is calculated on the dry cement. The other series which of course are treated under different conditions are made with the same amount of salt and are numbered in like manner, that is, No. 1 in all of the series is made without salt, No. 2 with 1 per cent, etc., etc. The obtained results from series A show that the addition of from 1 or 2½ per cent of salt has increased the strength.

The series B was made in the same manner as series A, everything at normal conditions, with the exception that all briquettes of series B were immersed in water at normal temperature and stored for the same period in water at normal temperature. With the addition of 1 per cent salt the increase of strength over the briquettes having no salt was considerable, for example, the briquette without salt at two days showed 615 pounds, and with 1 per cent salt showed 890; at 7 days without salt the briquette showed 740 and with 1 per cent salt showed 1,065 on neat cement. The two series A and B were only made for study and to ascertain the behavior of salt at normal conditions on briquettes stored in air and in water. It was expected that the results on the immersed briquettes would be higher.

It was not advisable to carry on the tests with the addition of more than 7½ per cent of salt as the addition of 5 per cent already showed to be detrimental, not only in strength but the cement also became quick setting, attaining a disagreeable color and showed a white precipitate and streaky surfaces.

The series C was made at freezing temperature, 32° F., all the materials and water were at the freezing point. The briquettes were stored for their different periods at freezing temperature. The addition of 1 per cent salt showed a high increase in strength especially for the first 48 hours which was for 48 hours without salt 60 pounds, for 48 hours with

*Read before meeting of Interstate Tile Association at Chicago.

ROCK PRODUCTS

APRIL 22, 1910.

HAIR CRACKS OR CRAZING ON CONCRETE SURFACES.

By Albert Moyer, Assoc. Am. Soc. C. E.

Hair cracks, being entirely on the surface, do not indicate a weakness in the concrete; in most instances they are not greater in depth or width than that of a coarse hair. A rough-surface concrete does not display these objectionable features to as great an extent as does an even-troweled face, on which surface they are very apparent, especially in damp or wet weather. Often these cracks do not appear for several weeks or months after the concrete has set hard.

It requires investigation as to cause to arrive at a correct solution of the trouble and thus apply permanent remedy; otherwise we are simply dealing with symptoms.

It has been known for some time that a very wet mixture of concrete is more apt to craze and show these undesirable hair cracks than a medium dry mixture of concrete. Dry concrete is objectionable from standpoint of strength and density; and therefore its use cannot be advocated simply because hair cracks are to some extent avoided. Investigation and practical demonstration leave no doubt of the fact that in a wet mixture of concrete a portion of the flour or the very finest particles of the cement are carried to the surface by the action of the excess water which is being absorbed by the atmosphere. This excess water is to a great extent drawn from the interior of the concrete to the exterior, carrying with it the finer particles, which, being deposited on the surface, form a richer mortar than is contained in the body of the concrete. Under certain conditions these fine particles deposited on the surface practically form a coating of neat cement.

Neat cement, or the richer mortars, are found to be much more liable to hair cracks and crazing than mortars containing a larger proportion of sand or finely crushed stone. This is particularly true in the manufacture of cement stone by the use of sand molds in which the mixture is poured very wet. It has also been noted, that, when the stone is properly seasoned by keeping the surface covered with a thick layer of very wet sand, or when the stone is immersed entirely and for some time in water, the trouble has been overcome almost entirely.

The crazing of neat cement is apparent in test pats for laboratory purposes when these pats are exposed and allowed to set and harden in air. But if they are protected in a moist closet and afterward immersed in water for a period of at least twenty-eight days, no hair cracks or crazing will result.

A careful examination of these cracks leads to the conclusion that they are due entirely to a contraction of the surface, the same contraction not taking place in the body of the concrete.

Experiments made by Professor Swain and Professor Bauschinger demonstrate that neat cement, when set and hardened in air, contracts. This applies to all brands of Portland cement. Further tests demonstrate that this contraction increases with age up to a certain period. The same authorities demonstrate that a mortar made of one part Portland cement and three parts sand, hardened in air, shows contraction, but less in proportion than the neat cement.

I will now describe the results obtained by investigations made by the same authorities and others showing the effects of neat cement and mortar when hardened under water. Test bars of neat cement and mortar, after the final set, were immersed and kept under water for a considerable period of time. The results prove that neat cement, when hardened under water, shows a slight expansion, while mortar composed of one part Portland cement and three parts sand hardened under water shows an expansion, but less in proportion than the neat cement.

Reducing these conclusions to figures and taking the average results obtained by various authorities, figuring the expansion and contraction in percentage, I find the following results:

Neat Portland cement, hardened in air, at the end of sixteen weeks shows a .15 per cent contraction.

One to three mortar, hardened in air, at the end of sixteen weeks shows a .05 per cent contraction.

Neat Portland cement, hardened under water, at the end of sixteen weeks shows an expansion of .05 per cent.

One to three mortar, hardened under water, at the end of sixteen weeks shows an expansion of .015 per cent.

Without going further into the matter of figures, it is safe to state that the expansion and contraction is less for shorter periods than sixteen weeks, and that the percentage will be a trifle greater if carried beyond sixteen weeks or up to six months or a year.

We can, therefore, conclude that in a rich mortar there is more neat Portland cement on the face; and, therefore, if hardened in air, a greater percentage of contraction of the surface; also that a less rich mortar will show a proportionately less percentage of contraction, and that if the concrete were kept wet and protected (which is equivalent to hardening under water), hair cracks and crazing would be avoided.

In the past this trouble has been partially overcome by brushing off the surface of the concrete or cement stone with a stiff steel brush; or by scrubbing the surface with a cement brick and wet sand or carborundum stone, thus partially removing what might be termed a neat cement face. It has been found, however, that this does not entirely overcome the trouble, the remedy proving but temporary, the cracks appearing several months afterward. The brushing or scrubbing is merely an assistance; the real remedy lies in keeping the surface thoroughly and continuously wet as long as possible. It is unfortunate that this rule is seldom observed, and that in its non-observance, good results are sometimes obtained. The worker in cement is thus influenced to disregard a matter of considerable importance in concrete construction. That good results are obtained from a disregard of these principles is largely a matter of luck. If the weather be damp for a number of days after the concrete has set, the object has been partially brought about by nature; then again, the surface may have been so placed as to ensure exposure from the wind or sun, which would tend to dry it, and was kept wet by the excess of water in the concrete.

It is desirable to have the surface of the concrete or cement stone as near the same texture as the body of the concrete. The exterior should then be kept wet by the application of wet sand, clean sawdust, hay,

etc., sprinkled from time to time with water or hanging wet clothes over the perpendicular surfaces, keeping the exterior wet and the cloths wet by sprinkling, or by any other method which will accomplish this result and supply similar or same conditions as when hardened under water. By so doing not only is crazing avoided, but a stronger, tougher and harder concrete is obtained. It is reasonable to conclude that if so treated the surface will slightly expand, but not to a greater extent than the body of the concrete which is already wet.

Hair Cracks May Be Avoided by the Addition of Mineral Oil to the Wet Mixed Concrete.

Mineral oils added to wet mixed concrete and the concrete immediately remixed has the effect of emulsifying the oils. The proportion of oil used should be 10 to 15 per cent of oil to the weight of the cement. Oil weighs from 7½ to 8 pounds per gallon.

This oil-mixed concrete, when hard, appears to be non-evaporative, indicating that the emulsifying oils held all the excess water in the mortar or concrete, keeping the cement particles moist until the water had been taken up in crystallization and ultimate strength reached. Thus similar conditions are supplied as apply to concrete set under water.

The writer has made up pats, 1 part cement, 3 parts sand, mixed with water in excess of that usually employed for laboratory purposes, after mixing, 10 per cent of oil petrole was added and the mortar remixed. Oil petrole is a white, non-volatile petroleum product, about the consistency of melted vaseline, manufactured by the Chesebrough Manufacturing Company, New York.

The pats were made measuring 2½ inches in diameter and $\frac{1}{4}$ inch thick. As soon as made they were left in dry air, the initial and final set was found to be normal. It was intended that they should be given every abuse possible, so they were never immersed in water, but remained in dry air for several weeks. They were then put out in freezing temperature for three days, and again placed in dry air over a radiator. No cracks or checks have occurred. They became so hard and strong that it was difficult to break them by use of the fingers and thumbs, although they were very thin, being only $\frac{1}{8}$ of an inch thick.

After remaining in dry air for a month, a test for absorption was made. A broken pat was weighed dry and found to weigh 94/64 ounces. It was then immersed in water for three hours. Upon removal from the water the surface moisture was quickly removed with blotting paper, the pat immediately placed on the scales and found to weigh 99/64 ounces. This pat was made with standard sand; therefore, a one-to-three mixture would not fill the voids. Porosity and quite some absorption could very naturally be expected, although it was shown that only 5/64 ounce of water was absorbed.

As it is fair to presume, even from these limited tests, that the pats are not absorbent and that the tests show in dry air that no checking or cracks result, that they are non-evaporative, it would seem that contraction and consequent hair cracks would be avoided.

The resulting concrete or mortar will naturally be weaker in tensile strain, but will be tougher and rendered less brittle. Concrete is not used for purposes which would throw it in tensile strain; it is believed that the crushing strain will not show as great a loss of strength as has been shown by breaking briquettes in the tensile machine. The oil-mixed concrete will be amply strong for the ordinary load, and the mortar will contain characteristics making it particularly adapted to surface finishes, stuccos, etc. (See "Uses of Mineral Oil-Mixed Concrete, Vulcanite Pamphlet No. 9.")

Another method which is given here merely as a suggestion and subject to further experiments, is the use of double fluorosilicate of magnesium and zinc. This is a salt readily soluble in water, which is easily painted over a concrete surface.

From experiments made by our chemical director, he is satisfied that its action on concrete is due to the alkali and alkaline earth salt in the concrete reacting with the fluorosilicate which has been carried into the pores of the concrete. This reaction produces a gelatinous binding material consisting largely of silicic acid.

These salts in solution applied one coat at a time, three to five coats being necessary, according to the porosity of the surface of the concrete, undoubtedly hardens the surface to a great extent, and might prove valuable in painting cast stone or other ornamental concrete work, which may not only have the effect of preventing hair cracks and crazing, but will probably assist very largely in protecting the arrises.

We are endeavoring to influence some of the chemical manufacturers in this country to produce this compound, and if successful, will advise those who may be interested in making experiments along these lines of the elimination of hair cracks and crazing. We might also use a thin solution of sodium silicate, which will soak into the pores of the concrete, which also gives a reaction and causes a deposit of silicic acid in the pores of the concrete.

Briquettes have been made using both the fluorosilicate and sodium silicate and the results have been very satisfactory, greater strength being obtained than was observed in samples made at the same time in which neither of these salts were used. Keep in mind that hair cracks are contraction cracks, or the shrinkage of the surface. Therefore, in work in which these hair cracks and crazing are likely to occur, precaution should be taken to avoid the shrinkage of the surface.

Method for Removing Hair Cracks, Map Cracks and Crazing From Concrete Surfaces.

Mix one part commercial muriatic acid or hydrochloric acid with four parts water, make several applications, one after another, with a brush containing little or no metal. This will not injure the concrete, as the acid does not sink to sufficient depth before it is neutralized. It will eat the surface to possibly the extent of 1/128 of an inch if three applications, within a minute of each other, are applied. The removal of this small portion of the surface will not be noticeable, but is sufficient to remove ordinary hair cracks and crazing, as they seldom go beyond this depth.

Within five or ten minutes wash off the surface thoroughly with clean water, scrubbing the surface while washing with an ordinary house scrubbing brush. This will give a surface to the concrete almost as natural and as beautiful as natural stone.

If after the concrete has dried it is found that still some hair cracks remain, apply acid as before. Be careful to wash off thoroughly with water and scrub with a brush. Instead of muriatic acid or in connection therewith a fine texture carborundum stone or a sand blast may be used to grind down the surface, thus accomplishing same results, but at an additional expense for labor.

Stucco and Plastered Surfaces.

If the plaster has not adhered permanently it will be almost useless to try to remove these disfigurements, for the reason that they will probably extend right through the plaster.

It is easy to determine as to whether such plaster has bonded to concrete, brick, etc., by tapping lightly with a hammer and noting if there is any hollow sound. If cracks have extended to a depth which cannot be removed by acid, about the only remedy is to brush the surface thoroughly with dilute muriatic acid, one part acid, four to six parts water, wash off with water as before and apply a thin coat of mortar, which will adhere, provided the surface is kept wet and the mortar is afterward kept wet for several days. This result is due to the fact that such surface has been washed clean by the acid and water, all dead cement, dust, etc., having been removed, and, therefore, the surface of the aggregates are exposed in practically the same condition as they were prior to having been mixed with the cement.

If this method is used, be very careful to keep the mortar wet or damp for four to six days or longer if economy will permit. This can be accomplished by hanging wet cloths over vertical surfaces and placing wet sand over flat surfaces and sprinkling several times a day.

BOSTON CEMENT SHOW.

The second annual exhibition of the Textile Manufacturers' Mill Supplies and General Textile Products will be held at Boston April 25th to 30th. In connection with this exhibition, a Cement and Concrete Show will be held. It will be in the Mechanics' Building. One of the objects of introducing the cement and concrete exhibition in connection with this show is the growing interest that is shown among mill owners and operators in concrete construction. Many operators want to know more of this material which has proven to be the best material for large construction work. Especially is this true in factory and warehouse building where large buildings are required. The use of concrete as a non-combustible material will prevent danger of fire.

Chester I. Campbell, No. 5 Park Square, has charge of the exhibits and he has invited cement and concrete operators to take spaces.

CONCRETE MAUSOLEUM AT KANKAKEE.

Kankakee, Ill., April 16.—The imposing concrete mausoleum being erected at Mound Grove cemetery is fast nearing completion. It presents a beautiful appearance as it is approached along the main boulevard of the cemetery at the head of which it stands on a slight elevation. It is all white and the main outlines of the building are oblong, with an imposing dome 36' high in the front. The dimensions of the building are 58'x24' and 22' high, and the entire exterior is of solid concrete, the dome being covered with chipped glass. Eight stained glass windows allow a shaded light inside. Not a single piece of perishable material has been used in the building.

INVENTS INTERLOCKING BLOCK MACHINE.

Dubuque, Ia., Apr. 16.—Andrew Ring, of this city, has invented a concrete block machine which moulds an interlocking block. Mr. Ring has covered his machine by patents.

The Springfield Concrete Post Co., of Springfield, Mo., has been incorporated for \$50,000 by Lewis A. Brown, of St. Louis; Barney Thrall and J. T. Woodruff, of Springfield. The company will manufacture concrete posts.

A big reinforced concrete skating rink and auditorium is being planned for Cleveland. The city already has The Elysium, the largest artificial ice rink in the world. Hockey and inside skating has become exceedingly popular and this new building is now being planned. A company headed by W. A. McAvoy, president of the Cleveland Amateur Hockey League, is behind the project. It is proposed to build a structure which can be used for a convention hall, seating 15,000 people.

The Dalhart Concrete Block Co. has been organized at Dalhart, Tex., with a capital stock of \$13,500 to manufacture concrete blocks. T. R. Day is president, W. M. Chandler vice-president, H. W. Gailbraith secretary, W. B. Slaughter treasurer.

Provo, Utah, Apr. 20.—J. C. Jensen, a mining operator of this city, has commenced the manufacture of cement products by taking over the manufacturing plant and business of L. A. Meyers. He will buy new machinery as it becomes necessary.

ROCK PRODUCTS

BLOCK MACHINES WANTED IN MEXICO.

An architect in a Mexican city would like prices, complete description, etc., on machinery for making concrete blocks. Write to David E. Thompson, A. E. & P., Mexico, for full particulars and the address of the inquirer. As the party desires to secure machinery at once, it will be to the interest of block machine manufacturers to write at once and secure the initial order, as it may lead to a big business.

NEW PLANT STARTED.

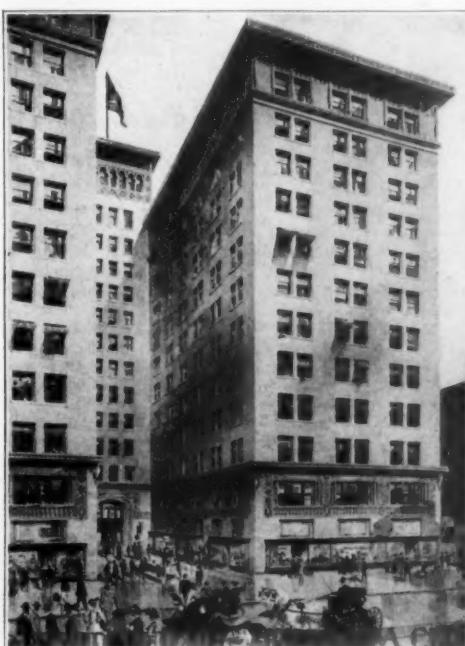
Wichita, Kan., Apr. 19.—The Carson-Dietrick Cement & Stone Co. have started a plant at 147 North Waco Avenue. J. W. Carson has for several years been the local distributor for the outside newspapers and magazines, while J. A. Dietrick was formerly connected with the Orient railway. With the marvelous amount of building that is being done here, there is no doubt that they will be able to dispose of their entire output in this city, although they intend also to solicit the surrounding territory. Their present output is about 500 blocks per day.

BUILDS ADDITION.

Cumberland, Wis., Apr. 10.—The Cumberland Cement Block Co. have built an addition to their factory, practically doubling its size and capacity, and are adding new lines of cement work. Heretofore the work has been confined to building and architectural blocks.

WHITE CEMENT BRICK IN OKLAHOMA.

Oklahoma City, Okla., April 20.—The superstructure of the Colcord Building is now under way. This building is being erected by C. F. Coleord, and will be used for a high class office building. The architects are Williams & Wells and the Lisle-



THE COLCORD BUILDING, OKLAHOMA CITY, OKLA., WILL HAVE EXTERIOR OF WHITE CEMENT BRICK.

Dunning Construction Company have the general contract for the work. It will cost in the neighborhood of \$425,000. The exterior is to be of white cement brick, which will be furnished by the Oklahoma Cement Brick and Products Company, whose plant is located in this city. The contract will take in the neighborhood of 2,000,000 white brick. In this product the manufacturers will use white silica sand and white Portland cement. As the entire building is to be of this brick, it will present a very handsome appearance.

PLANT SOLD.

Lake City, Ia., Apr. 19.—One of the most important deals that has taken place here for some time was consummated this week, when the Electrical Cement Post factory was purchased by John Sims, of Minnesota. In the transaction the company will receive 6,742 acres of land in Marshall county, Minnesota, while Mr. Sims will be entitled to all the holdings of the former company in this city. The new proprietor intends to improve the plant and greatly increase the capacity.

The Lewisville (Ind.) Cement Pile Co. has been incorporated for \$10,000. The directors are Grant De Witt, G. S. Dunlap and L. F. Symons.

DETROIT TUBE NEARLY READY.

The Michigan Central tunnel under the Detroit River, between Detroit, Mich., and Windsor, Ont., is near completion, and there remain only the approaches to be completed to put the finishing touches on the bores at the bottom of the stream. The work is in a sense a monument to the skill of W. J. Wilgus, former vice-president of the New York Central lines, in charge of engineering and construction, and now president of the Amsterdam Corporation, of New York. Great credit is due also to W. S. Kinnear, chief engineer of the Detroit River Tunnel Construction Co., and those associated with him. The original plans were drawn under the direction of Mr. Wilgus, who, after resigning from the New York Central lines, was persuaded to continue with this work as consulting engineer. Next to the terminal improvements in New York in connection with the electrification of the New York Central, and for which Mr. Wilgus prepared the plans, this tunnel under the Detroit River has been among his most ambitious achievements. The methods of construction employed were an innovation, and the results have aroused the admiration and interest of engineers in all parts of the world.

With the bed of the river composed of soft silt, to drive a tunnel through it in the usual manner was out of the question, unless at a depth which, with the long approaches required, would involve almost prohibitive cost. In the river section of the work the radical departure from former methods of construction was taking steel tubes assembled in parallel pairs on shore in sections about 260 feet long. The tubes were towed several miles to the line of the tunnel, where the river is from 60 to 90 feet deep. The tubes were provided with valves to permit water to enter, which, opening simultaneously, lowered the tubes gradually to the bottom. Air cylinders on the top of each controlled inequalities of sinking, and the sections settled in perfect line and grade. One of the essential features of the work was the placing of the concrete in the compartments between and around the tubes, formed by the diaphragms and the timber walls attached to them. The concrete was mixed on a barge and then dropped through a steel tube, which was moved up and down so as to give a 10-ton blow, serving as a tamper, while the heavy concrete forced away the lighter mud and formed a solid wall about the tubes. The sections were then emptied of water and concrete applied to the interior, making the tunnel virtually a monolith around two tubes of two-inch steel.

The two approach sections were driven by special steel shields differing from any in use before.

On both the Canadian and American sides steam operation will stop at the beginning of the approaches, and trains will be drawn through the tunnel by electric locomotives, taking power from a third rail.

NEW COMPANY AT WATERLOO.

Waterloo, Ia., April 20.—The Cement Products Company has been organized in this city for the purpose of manufacturing concrete drain tile and other concrete products. The officers of the company are H. S. Raymond, president; H. A. Sharp, vice-president; E. E. Schenk, secretary, and W. H. Stewart, treasurer.

It is the intention of the company to manufacture anything in the line of concrete, besides doing a general dredging and general contracting business. The company is incorporated for \$20,000. They propose to install a plant in which the Schenk cement drain tile machine and the S. & S. equipment, manufactured by the Cement Tile Machinery Company, will be used. This is to be a model plant, using the steam curing system. They will also educate and instruct men how to operate the machinery and the S. & S. equipment, as they intend to co-operate with the Cement Tile Machinery Company. The plant will be used for demonstrating purposes and figures on costs of operation, etc., will always be open to the visitors so they will see exactly what the cost of production, as well as the profit, is in the cement drain tile business. It will also enable concerns starting up to secure competent men, as they will be trained in the operation of this machinery.

The plant is to be located on the river and they will reclaim sand. It will be pumped into settling bins and from there elevated into the plant, where it will pass through the sand screen and be graded into the sand bins. The plant will be in operation about May 1.

The Concrete Pole Co., of West New York, N. Y., has been incorporated for \$100,000, to manufacture concrete steel poles, piles, cross-arms, etc. The incorporators are D. A. Krellwitz, D. G. Krellwitz and D. W. Krellwitz.



The accompanying cut illustrates the new Williams raw material grinder, for tube mill feed.

The latest addition to the Williams Hammer Mills is a Universal Grinder 60 inches in diameter, operating at 720 R. P. M.

This extra large unit is of especial interest to cement manufacturers where large units are desired.

This 60-inch machine, which is the number 9 size, is equipped with automatic feeder driven from mill shaft, with their celebrated grinding plate, adjustable hammers, safety device or metal arrester to relieve machine quickly of foreign material, special milled tool steel cage bars, absolute uniform openings, and many other improvements too numerous to mention.

It will take limestone, bluestone, shale, clay, or coal, in cubes $1\frac{1}{2}$ inch and under, and deliver to tube mill a product 95 per cent through 20 mesh, without screens or separators. This number 9 unit will handle from 18 to 25 tons of raw mix hourly, depending upon the grindability of the rock. This machine will do the work of five ball mills and double the work of the largest units now commonly used in the cement plants.

The Universal Portland Cement Co., Universal, Pa., have installed five of these number 9s and have just ordered four more for the South Chicago and Buffington operations.

The Williams Company has also installed three more in smaller companies who recognize the economy in a unit of this size. They have proven beyond



any question of doubt that these mills will give a uniform product year in and year out by the adjustment of the grinding plate from the outside of the machine, while in operation, and that the cost of maintenance is much less for this work, and the horsepower per barrel is at least 50 per cent less than other methods now in use.

The first number 9 has now been in operation some thirteen months and is giving the same excellent results today that it gave on the day it was started. This same machine is made in a smaller unit of 8 to 10 tons hourly for the average Portland cement plant, and contains all of the improvements of the larger machine.

The Williams Company make a specialty of preparing raw material "only" for tube mills and roller mills, and have just issued some interesting literature on their mills for cement mill work.

Address the Williams Patent Crusher and Pulverizer Co., 545 Old Colony Building, Chicago, Ill., for their catalogue.

The selection of high grade mortar colors is one of the important features for the dealer. With the growing demand for colors in mortar and stucco work, the field is rapidly increasing. Ricketson's Red Brick brand of Mortar Colors are said by the manufacturers to be rich and bright and will never fade, crack or prove otherwise disappointing so long as the material with which it is incorporated remains intact.

The Kilbourne & Jacobs Manufacturing Company, of Columbus, Ohio, manufacture the Pan-American tray wheelbarrow. It can be used to handle sand, gravel, crushed rock, dirt or concrete with equal convenience, and the company claims that as this wheelbarrow is manufactured of the best selected materials it will give better service than any other wheelbarrow on the market.

A thirty-six page copyrighted booklet has just been published by the Superior Portland Cement Co., whose offices and sales department are in the Union Trust Building, Cincinnati, Ohio. The spokesman is J. B. John, general manager, who built the model Superior Mill at Superior, Lawrence County, Ohio. The reader takes a little journey with Mr. John from the quarries to the market, each step in the process of Portland cement manufacture being explained on the way. This lucid booklet is well typed, illustrated, and printed, and will certainly be perused with interest alike by engineers, contractors, dealers and users of Portland cement. As the Superior raw material runs very low in magnesia, there is a pointed chapter on this subject, as also numerous birdseye views of "Superior Monuments," showing many important works where Superior has been used. Write for booklet "C 7"; it will be mailed on request.

One of the most practical innovations which has come to our attention is the Security Bag Binder, a device used in returning empty bags to the cement, plaster, lime and other manufacturers. The binder was exhibited and demonstrated at the Cement Show by the Shipping Appliance Company, whose offices are located at 134 Monroe Street, Chicago. The Security Bag Binder is a substitute for all other present methods of bundling bags. It compresses the bags, locks the bundle automatically and becomes a part of the shipment. When destination is reached the binder is opened by the manufacturer with a master key.

Many bags are now torn by coming in contact with the exposed wire points of baling wires on the other bundles in the shipment. The mending of torn bags now reaches an enormous figure—likewise the loss of bags which become unfastened in transit or where the shipping tag is torn from the shipment, thereby losing its identity.

These and many other bag troubles are eliminated by the use of the Security Bag Binder, and in addition it is claimed that the manufacturers of cement and other products will receive their empty bags when they most need them, during the busy season, instead of during the slack winter months. This will obviously reduce his purchases of new bags each season, thereby effecting an economy in this direction.

The binder being convenient, easily operated and saving over 80 per cent of the time consumed in in wiring and tying, will naturally result in the customer returning his empty bags more promptly and securely, feeling assured that there is no possibility of the contents of the bundle becoming lost, strayed or stolen in transit and consequently no claims to be made against the railroads. Its use is approved by the railroads as a substitute for wire and rope shipping bags.

The Shipping Appliance Company recently made a test shipment of a binder containing fifty empty cement bags. The shipment made a continuous journey of 5,168 miles, from Chicago to West Berkeley, Cal., and return, via the Sante Fe railroad, and both the binder and its contents returned in as good condition as when the shipment started, evidenced by affidavits on file.

Our readers, both manufacturers and users of cement and other rock products, will no doubt be mutually interested in this practical device and we feel no hesitancy in saying that it is worthy of consideration as one of the most valuable and practical contributions to the industry which has come to our notice.

The Pittsburg Contracting Co., for their work on Section 53 of the Catskill Aqueduct, N. Y., have placed an order with the Ingersoll-Rand Co. for an equipment of air compressors and rock drills.

Beaver Board, the modern wall and ceiling material, is attracting attention all over the United States. It has been used extensively all over the country, and universal satisfaction is reported. Its decorative possibilities are unlimited.

We give an illustration of one of the rooms of the United States Music Co., 152 Wabash Avenue, Chicago, that was covered with Beaver Board. This company is more than pleased with the result. There are hundreds of others who have used it in Chicago alone.

Beaver Board takes the place of both lath and plaster, and any number of different varieties and combinations can be made. Typical decorative schemes can be modified to apply to the various requirements of different rooms. It is composed of wood fibre and no wall can be more sanitary. It

is sound proof and water proof. It can be finished in any color or scheme of colors desired. It is impervious to heat and cold. Dampness is entirely obliterated, and yet with all these advantages, its cost is less than most any other form of covering. Nothing is more unsightly than cracked plastered walls, unadorned or showing through the paper. With Beaver Board such a condition is impossible. It is nailed directly to the studding of a new wall or ceiling or put on an old one without removing the plaster. It can be put on by a carpenter or by anyone handy with tools. It will not crack, check or deteriorate with age.

Beaver Board is made in the following sizes, regular standard sizes: 32 inches and 48 inches wide by 4, 5½, 6 and 7 feet long. Sizes carried at factory for direct shipment, 24, 32, 36, or 48 inches wide by 1 to 16 feet long.

It is manufactured by the Beaver Manufacturing Company of Buffalo, New York, who guarantee that their products are of unsurpassed quality and workmanship. Their mark is placed upon every panel of Beaver Board in evidence that it has been properly made, carefully inspected and pronounced perfect. They state that if it should not be found so in your estimation, or to your satisfaction, it can be returned and a new panel obtained without question and without cost.

The Wisconsin Lime and Cement Co., whose offices are located in the Chamber of Commerce Building, Chicago, are the selling agents and distributors for the central states. Write them for samples, prices and particulars.

Chalmers & Williams, incorporated, Chicago, advise us that they have received orders for Kennedy Gyraetary crushers from the following: Berceer County workhouse, Morse Station, N. J., one number 3 crusher; The Valley Stone Company, Amsterdam, N. Y., a number 7½ crusher, and the Tata Iron & Steel Company, Calcutta, India, two number 7½ crushers.

We are illustrating the latest designed drill for blast hole drilling, manufactured by the Cyclone Drill Company, of Orrville, Ohio.

The illustration shows the machine fitted with electric power. The machine is also built with steam and gasoline power to suit all requirements and is now being built in traction, both in steam and gasoline.

The reason for designing this special machine for blast hole drilling was to meet the requirements and conditions as found in the limestone quarries for drilling the deep holes necessary to reach the bed of the quarry. It is made to drill the holes large enough to admit explosive sufficient to throw out the material and above all to make about the same average of larger holes per hour as is possible



METHOD OF SHIPPING BAGS INVENTED BY THE SHIPPING APPLIANCE COMPANY.

to drill deep small holes, so that the cost of each linear foot while costing a trifle more per foot, on account of the greatly reduced number of feet of hole necessary to do the same work, or more, will be greatly reduced.

The drill has thus far shown it to be suited to the purpose and greatly exceeded what could have been reasonably expected of it.

In designing the machine, a number of things were kept in mind, first to build a drill as light and compact as possible yet with strength sufficient to handle a very heavy string of tools, which is necessary to rapidly drill the hard limestone found in this class of work.

To do this it becomes necessary to use forgings and cast steel instead of gray iron on many parts



RECEPTION ROOM UNITED STATES MUSIC COMPANY, 152 WABASH AVE., CHICAGO.

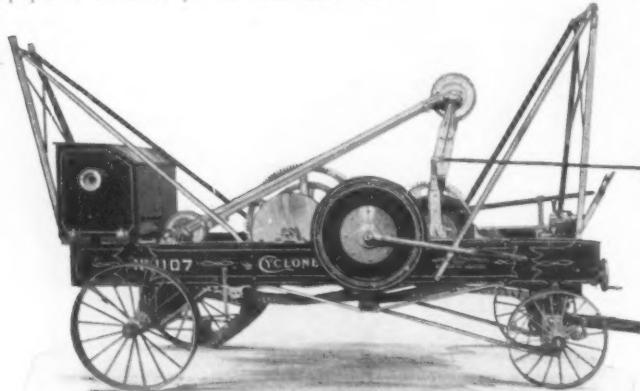
to decrease the weight and give the maximum strength.

It is seldom that a machine can be designed throughout without finding later that several parts of it have to be altered in some respect, strengthened or re-enforced, but up to the present time not a single change has been necessary.

Twelve drills of this type have been in the field for the past six or eight months and not one penny has been spent for repairs.

The casual observer, seeing one of these outfits in operation, can form no idea of the power being exerted on the various parts of the machine. They run so smoothly and with such little effort that the work is apparently play for the machine to handle it.

The bit, stem and rope socket are 30' long and



THE LATEST MODEL CYCLONE DRILL.

APRIL 22, 1910.

ROCK PRODUCTS

weigh 1,700 pounds; this weight is jerked up 30" to 40" and dropped 60 to 62 times per minute, 3,600 times per hour, or 36,000 times per day.

When the immense weight is considered, the thousands of strokes per day, and this continued one month after another, one can then realize what it requires to build a piece of machinery for doing this work successfully and without repairs.

The motors on these outfits are belted direct to the driving wheel of the machine. They give much better service than the geared motor as the jerking motion of the machine soon puts the gears out of commission, due to the constant back lash.

Each motor is provided with variable speed control as well as reverse, worm gear feed for letting out the cable as the holes go down, using patented spudding device and friction positive clutch.

A recent record made by one of these drills in the quarry of the Dolese-Shepard Company of Chicago was 5 feet 10 inches per hour, extending over a period of one month, counting all delays of moving machine, etc.

CLASSIFIED ADVERTISEMENTS

Advertisements will be inserted in this section at the following rates:

**For one insertion 25 cents a line
For two insertions 45 cents a line
For three insertions 60 cents a line**

**Eight words of ordinary length make one line.
Heading counts as two lines.
No display except the headings can be admitted.**

Remittances should accompany the order. No extra charges for copies of paper containing the advertisement.

EMPLOYEES WANTED

WANTED.

If you are in need of or wish to sell anything which comes under any of these classifications, write us. If you have something not coming under these classifications we will create one for you.

MANAGER STONE QUARRY

wanted. Experienced man to have charge of office and manage stone quarry getting out crushed stone exclusively. Plant located in central Indiana. Give full details of self.

Address 757, care Rock Products.

PRACTICAL LIME KILN DESIGNER

Wanted. In consulting capacity or wishing to connect himself with engineering and contracting firm designing and installing lime kilns and entire lime burning plants.

Address 755, care Rock Products.

CAPABLE AND RELIABLE MAN WANTED.

A young or middle aged man to take an active interest in a building material business in western city of 50,000, growing very rapidly, great amount of building now and splendid demand for material. The business has the best line of exclusive agencies for plaster, brick, fire brick, building tile, fireproofing, etc., of any dealers in city. Principal owner has other large interests and can not devote time to this business and will offer splendid opportunity to capable and reliable man who is thoroughly posted in the sale and handling of building material. None other need apply.

Address "BUILDING MATERIAL," care Rock Products.

EMPLOYMENT WANTED

PRACTICAL LIME MAN

Wants position. Capable of filling any position in connection with lime business. Ten years' experience as foreman, superintendent and manager. All references.

Address "A. A." care Rock Products.

SUPERINTENDENT FOR CEMENT PLANT

Wants position in United States, Mexico or South America. Graduate chemist and familiar with mechanics. Directing chemist and asst. superintendent for over 14 years. Address 754, care Rock Products.

TRAVELING SALESMAN POSITION

wanted. By traveling salesman, several years' experience, cements, plaster and building material. First class references. Address BOX 736, care Rock Products.

PLANT FOR SALE

WHITE LIMESTONE QUARRY

For sale. Patent kiln for burning limestone suitable for ore smelting and cement, covers about twenty acres. Quarry is situated about seven miles from Buffalo, one mile from the Grand Trunk railway, near Fort Erie, Ontario, Canada. Address

B. & E. BAXTER,
Fort Erie, Ontario, Canada.

The Sawyer Belting Company, of Cleveland, Ohio, issue for the convenience of the trade a Sawyer Belting Booster. Each issue of it contains some interesting reading on the subject of stitched canvas belting and the Sawyer belting paint. The April issue, which was recently issued, contains on the back page "Sawyerisms" and gives some straight talks on various subjects. The department, which is headed "Belting Pointers," is something every user of belts ought to read. It contains some valuable suggestions on the use of belting in order to insure longer life to the belting.

Judging from the endorsements given by well-satisfied patrons, Anton Vogt, of Fort Smith, Ark., appears to have mastered the art of constructing down-draft brick kilns, a matter of which Mr. Vogt has been giving close attention for years. Here are two sample letters:

Mr. Anton Vogt, Fort Smith, Ark.—Dear Sir: I am glad to hear of your prospects in introducing and pushing your plan of down-draft kilns. Your demonstration while managing our plant here while I was president of it proves beyond question that you have mastered the

art of down-draft kiln building. The saving in fuel and the extreme high percentage of finished bricks from each burn clearly prove that this method of kiln building is as near perfection as it could possibly be. With best wishes for your success, and trusting to hear of your kilns taking the lead wherever tried, I am,

Yours truly, TOM HOPE,
President of Ada National Bank.
ADA, OKLA., Feb. 1, 1910.

Mr. Anton Vogt, Fort Smith, Ark.—Dear Sir: We are pleased to say that the down-draft kiln we recently built from your design is a complete success. We burn every tile hard in this kiln, without overburning any of them.

The loss in cracked ware is comparatively nothing, while in our old kiln from twenty-five to fifty percent of our tile would crack in burning.

The kiln is equally adapted for burning brick. We have been burning brick and tile for the past ten years, and never, until we erected a kiln of your design, did we burn our ware without heavy loss.

This kiln has effected a saving of at least one hundred dollars each burn in fuel and labor, besides eliminating heavy loss in damaged ware. We take out at least ninety-nine percent salable ware. Yours truly,

ALABAMA BRICK & TILE CO.,
For W. B. Neher, Manager.
HOLLYWOOD, ALA., Oct. 16, 1909.

WELL EQUIPPED PLANT

For sale. For the manufacture of hard brick and street pavers. Good shale, fire clay and operating coal mine on the property. Located on leading railroad in eastern Ohio. Fine opportunity for right parties.

Address X. L.

care Rock Products.

QUARRY PLANT. FOR SALE OR LEASE.

Fifty acre lime stone quarry fully equipped, on railroad, eleven miles from St. Louis.

Thirty thousand dollars.

Address F. W. STOLLE,
East St. Louis, Ill.

LIME PLANT FOR SALE.

Owing to the death of the manager, one of the best working lime plants in the South will be sold to settle the estate.

Address "LIME," care Rock Products.

BUSINESS OPPORTUNITIES

IN THE DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF INDIANA.

Before John O. Bowers, Referee.

In the matter of No. 75,
Indiana Sand Lime Brick Co., In Bankruptcy
Bankrupt. (At Hammond)

Notice is hereby given that on the 9th day of April, 1910, an order was entered authorizing the sale by the trustee of said estate of the real and the personal property therein, at the former office of the said bankrupt, on the premises at North Judson, Starke County, Indiana, on the 21st day of April, 1910, and that pursuant to said order said trustee will offer at private sale, for cash, the said property of said bankrupt, on said day, beginning at 10 o'clock in the forenoon, and from day to day thereafter until sold, which property will be sold subject to existing liens, except taxes which accrued prior to March 1, 1910.

Dated at Hammond, Indiana, April 11, 1910.

JOHN O. BOWERS, Referee.

M. G. White, Trustee, North Judson, Indiana.

SALES AGENCY WANTS LIME.

A strong selling organization familiar with conditions throughout the country, will take over part or the entire output of several representative lime manufacturers in different parts of the United States. We want to hear from concerns who desire to create a larger market for their product. Must be able to guarantee prompt shipments.

Address BOX 758, care Rock Products.

CAPITAL WANTED

to reorganize a stock company and develop the best high calcium lime and rock proposition in New York state—70 acres. Deposit practically inexhaustible; 20 rods from New York Central R. R. Summit 200 feet above water level. Conditions ideal for rotary kiln plant. Electric power obtainable. Thorough investigation desired.

Address correspondence "W. R. L. CO.", care Rock Products.

LIMESTONE QUARRY.

Active partner wanted, by parties opening up deposits of white limestone used in cement mills, blast furnaces, foundries, smelters. Railroad siding and power plant installed and some stone shipped. Small amount of funds will complete development and place project on paying basis. Market eastern Pennsylvania and northern New Jersey.

Party preferred having experience in quarrying or some of above industries.

Address BOX 756, care Rock Products.

FOR SALE OR LEASE.

Lime quarry and kiln on railroad in thriving district in Nevada. Apply to NEVADA HARDWARE & SUPPLY CO., Reno, Nev.

INDIANA QUARRIES TO LEASE

on yardage to reliable contractor owning 1,500 yard crusher. Unlimited rock of best quality. By recent supreme court decision millions will be spent on rock roads in Indiana. Write CHARLES E. WYMAN, Pekin, Ind.

FOR SALE.

Half interest and management if desired in well established brick and tile plant in Wisconsin city of 15,000. Lots of clay, face of bank 60 ft., perfect drainage, little top soil, sand bank adjoins. Burns 75% select rich cream color brick that meets government requirements. Tile of the best. Coal distributing point. Market by water and two railroads. Prosperous and growing trade. Cheapest place to manufacture in the state. Must build larger. Owners have other business. Address

INDUSTRIAL DEPT. SOO RY.,

Minneapolis, Minn.

COMMISSIONER'S SALE

OF VALUABLE LIME QUARRY PROPERTY,
EQUIPPED WITH MODERN MACHINERY, NEAR
WOODSTOCK, VIRGINIA.

Pursuant to a decree of sale entered by the Circuit Court of Fairfax County, Virginia, at its March term, 1910, in the suit of Shockley et al. vs. Woodstock Lime Company, therein pending, the undersigned Commissioner of Sale will offer for sale at public auction, on the premises, at two o'clock p. m. on Saturday, the 14th day of May, 1910, that certain tract of land, located near Woodstock, in the County of Shenandoah, Virginia, containing about thirty-three acres, more or less, upon which property the Woodstock Lime Company has been operating a lime quarry business.

The said land has upon it substantial and commodious buildings, suitable for carrying on the lime quarry business, and the said plant is equipped with modern and expensive machinery, in good condition. This property is located in the Valley of Virginia, and the land contains an inexhaustible supply of the famous blue limestone rock to be found in that section.

TERMS OF SALE: One-third cash, and the residue in two equal payments at one and two years from day of sale, evidenced by the purchaser's interest bearing notes, and secured by retention of title until the last payment is made, and further secured by assignment of fire insurance policy upon the building on said land. All cash may be paid at the option of the purchaser.

F. S. McCANDLISH,
Commissioner of Sale.

I. W. E. Graham, Deputy Clerk of the Circuit Court of Fairfax County, Virginia, do certify that the bond required of F. S. McCandlish, Commissioner in the above mentioned suit, has been executed by him with approved security.

Given under my hand this 12th day of April, 1910.

(Signed) W. E. GRAHAM,
Deputy Clerk.

Partner Wanted

IN Profitable Lime Business

I want to secure the co-operation of a first-class lime manufacturer in obtaining capital to erect and manage an A One lime and hydrate plant of 300 bbls. per day, average retail price \$2.00 per bbl. Coal \$6.50. No competition. Market for 300 miles in new growing irrigated section. 3,000,000 cubic yards lime rock in sight.

Analysis: Lime 90% to 97%; Magnesia 3% to 10%.

Address CHAS. J. PERKINS

Care of Rock Products

ROCK PRODUCTS

LOCATION AND PARTNER

wanted. To establish crushed stone business. We have the plant. Address
OMAN STONE CO., Nashville, Tenn.

PARTIES INTERESTED IN CLAY

that will make first-class fire brick, paving brick or pottery will do well to address INDUSTRIAL COMMISSIONER SOO LINE, Minneapolis, Minn.

THE BEAL CORE DRILL.

The best, cheapest and most effective core drill for testing quarries, coal and mineral lands. Borings made for foundations, records furnished of each test, of the foundations and cores taken out 3 or 4 inches in diameter to variable lengths. Any one wishing work of this kind done write me a postal card. Correspondence solicited. Address

EDWIN S. BEAL,
214 Woodlawn Ave., Lansing, Mich.

MACHINERY FOR SALE

UNITED STATES CRUSHED STONE COMPANY'S MACHINERY LIST.

On account of the electrification of our plant at McCook, Ill., we offer for sale f. o. b. cars McCook, the following equipment, which was purchased new two years ago. All of these machines are in good working condition, subject to inspection. Terms, strictly cash.

1—No. 5 Lidgewood Hoist. 8½x12 cylinder. Single drum and winch. Hoisting engine with boiler attached, and mounted on engine bed. Drum is 16" diameter by 26" wide between flanges, and winch head is 7" in diameter by 12" long. Boiler is 40" diameter, 84" high, has 80 2" tubes. Weight of entire rig, 8,500 lbs. \$400.00 f. o. b. McCook, Ill.

1—No. 180 Flory Mfg. Co. 75 H. P. 12½x15 double cylinder, single friction, drum hoist fitted with link motion, shop No. 3085. Drum 46x42. Weight 20,300 lbs. \$1,100.00 f. o. b. McCook, Ill.

1—14x16x22 and 13x16 type 10 Ingersoll-Rand Co. air compressor. Capacity 1,040 ft. per minute—H. P. cylinder No. 10,453, L. P. cylinder No. 14,054, complete with 4" S. & P. governor. \$2,850.00 f. o. b. McCook, Ill.

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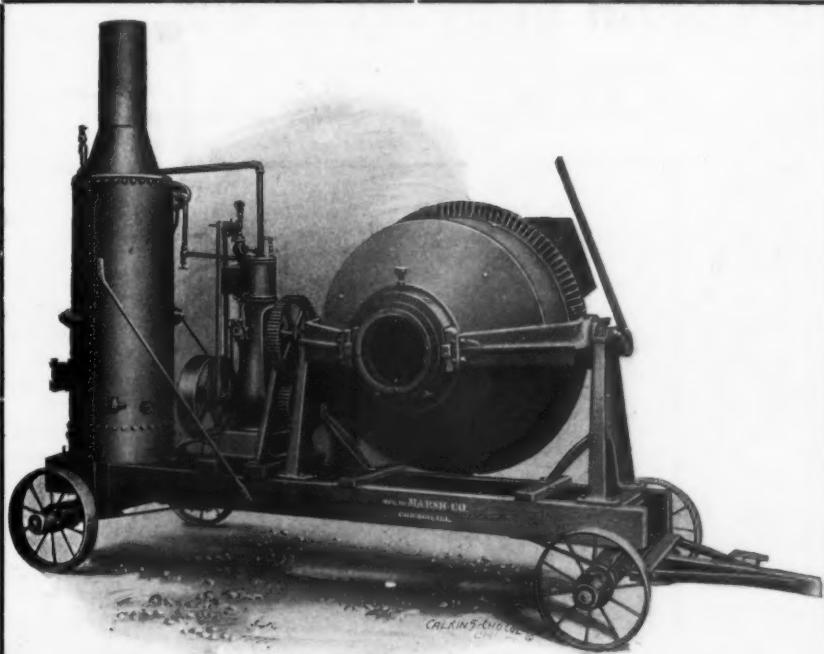
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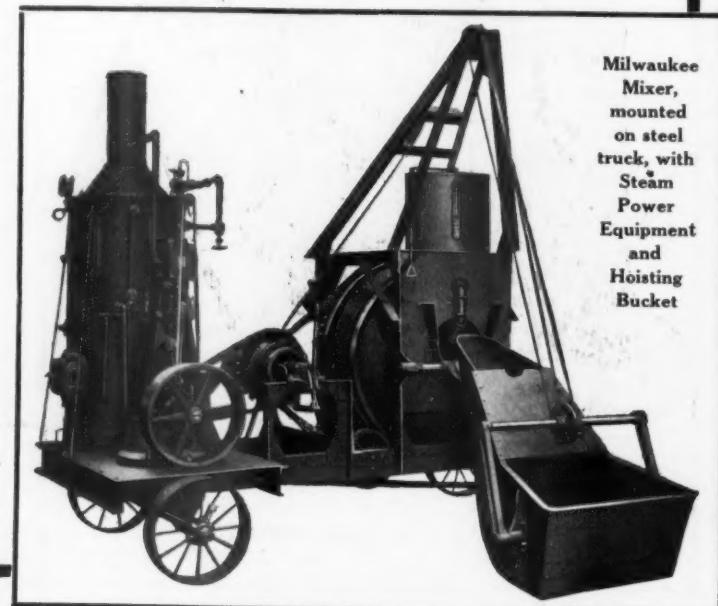
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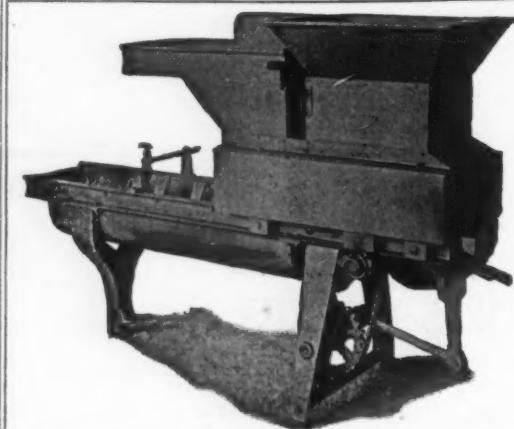
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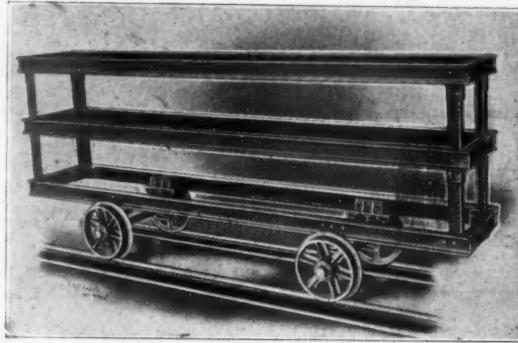
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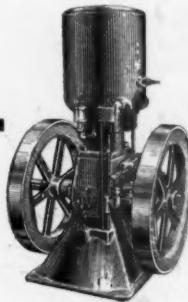
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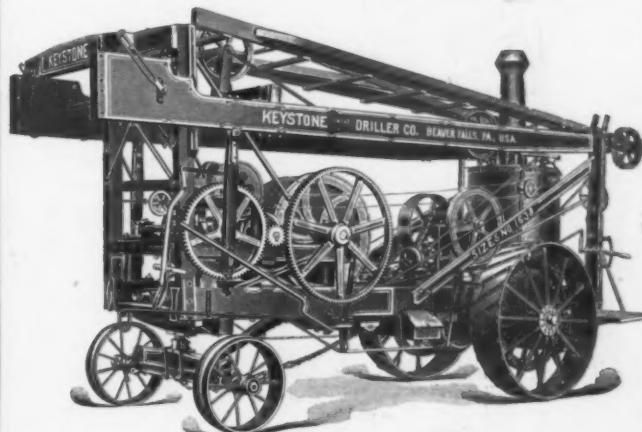
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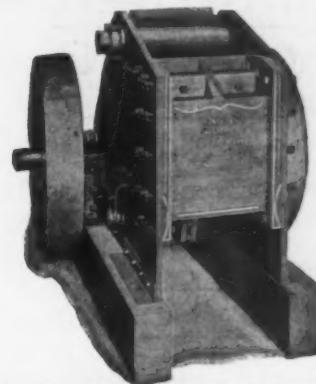
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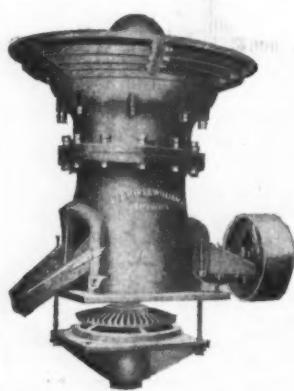
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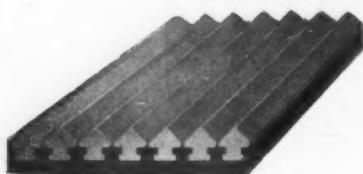
For boring anything that
an Auger will penetrate.

Awarded Gold Medal, St. Louis.

We make 40 different styles machines run by Hand, Compressed Air and Electricity for boring Fire Clay, Coal, Rock, Rock Salt, Gypsum and Plaster Rock. Send to day for our handsomely Illustrated Catalogue.

HOWELL MINING DRILL CO., PLYMOUTH, PA., U. S. A.
(ESTABLISHED 1878.)

A Tempered Steel Jaw Plate for Blake Type Crushers



Canda Tempered Steel Crusher Jaw Plate

Patented March 31, 1908

CHROME STEEL WORKS CHROME, N.J., U.S.A. (FORMERLY OF BROOKLYN, N.Y.)

The Canda Tempered Steel Jaw Plate for Blake Crushers is composed of Forged and Rolled Chrome Steel Bars, cast-welded and also mechanically interlocked into a backing of tough steel—and the wearing face is tempered to extreme hardness. We are equipped to supply both corrugated and smooth face plates for all sizes and makes of Blake Crushers. The Canda method of cast-welding forged and tempered steel bars into a mild and tough Steel Backing, is adapted also to the construction of Cone Heads for Gyratory Crushers, Segments for Corrugated Rolls, etc., etc. Our products in this line are sold with our special guarantee that they *will wear longer, give better satisfaction and, at our price, prove more economical than any others now on the market.*

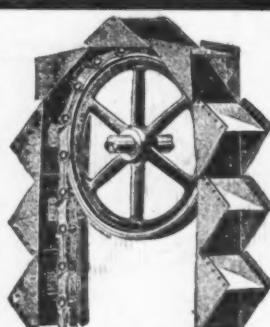
—Send for Descriptive Pamphlet—

Represented by

J. F. Spellman, 202 Century Building, Denver, Colo.

George T. Bond, Easton, Pa.

George W. Myers, San Francisco, Cal.



Send for Catalog 25



THE GENERAL CRUSHED STONE CO.,

So. Bethlehem, Pennsylvania,

have been using one of our Common Sense Elevators for six years—
capacity 400 tons an hour.

THE C. O. BARTLETT & SNOW CO. CLEVELAND,
OHIO.

FARREL ORE AND ROCK CRUSHER

USED IN ALL PARTS OF THE WORLD—LARGE RECEIVING CAPACITY—SPECIALLY DESIGNED AND CONSTRUCTED FOR HARDEST KIND OF WORK
COMPLETE CRUSHING PLANTS OUR SPECIALTY

• SEND FOR CATALOGUE •

EARLE C. BACON, ENGINEER.

FARREL FOUNDRY & MACHINE CO. HAVE MEYER BUILDING, NEW YORK

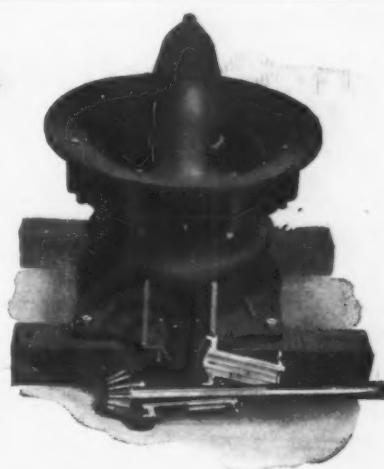
Tell 'em you saw it in ROCK PRODUCTS

You Are Seeking

and every crusher man has long sought for a rock crusher combining the continuous crushing movement, large capacity, uniform product and durability of the old-line gyratory breaker, with the advantages of low feed and reduced weight.

These features are found in one machine and in only one—the

Symons Crusher



HEIGHT—The Symons No. 5 measures 3 ft. 9 in. from sills to rim. Other sizes are correspondingly low. **WEIGHT**—The Symons No. 5 weighs 17,000 lbs. Other sizes show similar economy in weight. **STRENGTH**—The short stocky frame, the thick, three-arm bottom spider, the heavy crown and the great central bolt, clamping frame and crown together,—all guarantee a degree of strength unattainable in crushers of the lever-shaft type. **DURABILITY**—The long eccentric bearings, dust proof and automatically oiled—the absence of the suspension bearing—the simplicity of the entire machine—these features guarantee reliable and economic operation under the severest conditions.

The T. L. Smith Company

301 Old Colony Building
Chicago, Ill.

Majestic Building, Milwaukee, Wis.



Mitchell's Improved
1910 Pattern—20 sizes

Joyful News to Quarry Operators

Here is a machine that will reduce 4" and 5" rejections from your large Crusher to a 2" product. It is the MITCHELL IMPROVED CRUSHER. Your demand for No. 2 rock to pass a 2" ring was greater last year than you could supply. Have you installed one of these Crushers to take care of the contractors' demands for this year? It will be greater than ever.

Mitchell's Improved Crusher

The capacity depends upon the size of the machine—we make 20 different ones

All wearing parts are of manganese steel—specially built to stand the "Hard Knocks." Let us tell you about our No. 3, No. 4, No. 5, and No. 5B Improved Crushers.

WRITE FOR OUR CATALOG SR.

Eureka Stone & Ore Crusher Co. CEDAR RAPIDS, IOWA

Barron & Cole Co.,

Barron Bldg., New York City, N. Y., Sole Eastern Representatives.

W. J. Dickson,

Fitzsimons Bldg., Pittsburg, Pa., East Central Representative.



AUSTIN GYRATORY CRUSHER

The World's leading rock and ore breaker.

The only self lubricating Crusher.

The only Crusher having double countershaft bearing.

Simple construction, correct design.

Thousands in use.

Plans and specifications furnished for any sized plant.

Send for Catalogue No. 17.

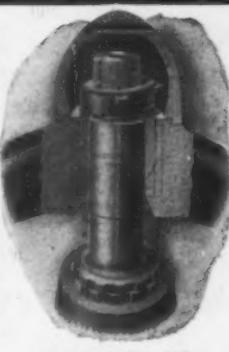
All experienced users recognize that the efficiency and durability of the suspension bearing as applied to Gyratory Crushers, depends upon locating the bearing at the point of least gyration or movement of the main shaft.

A perfect suspension can be made only by locating the bearing at the point where there is no movement of the shaft. That being a mechanical impossibility it follows that superiority is obtained in fixing the bearing at the point of least gyration of the shaft.

As the accompanying cut will show, the movement of the shaft at the point of suspension in the Austin Crusher is reduced to the minimum and practically eliminated. Consequently the highest possible degree of efficiency and durability is obtained.

Austin Manufacturing Co., Chicago*

Mussens Ltd., Montreal, Can., Canadian Sales Agents.



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1652 FULTON BUILDING
Hudson Terminal

Breakdown Jobs



are right in our line. Carrying an immense stock of blanks, we can fill your order at once.

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wire us.

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DESIGNING, CONSTRUCTING AND OPERATING
ENGINEERS ANALYTICAL CHEMISTS
CEMENT MILLS A SPECIALTY

OFFICES: ALLENTOWN NAT. BANK BLDG. ALLENTOWN, PA.

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FOR

Industrial Plants



We manufacture machinery for transmitting power, and for elevating and conveying materials in and about cement plants, rock crushing plants, lime plants, mortar works, plaster works, and other industries.

We manufacture screw conveyors, belt conveyors, and all sorts of chain and cable conveyors, for handling rock, lime, sand, etc.

We manufacture elevators, also, for handling the same kinds of material. Our lines include shafting, couplings, bearings, collars, pulleys, gears, rope sheaves, sprocket wheels, elevator buckets and bolts, steel elevator casings, etc.

We have our own foundry, sheet metal department and machine shop. We employ first-class help in all departments and use high-grade materials.

When you are in need of anything in our line, try us.

Catalog No. 34

H. W. Caldwell & Son Co.

17th St. and Western Ave., Chicago

Fulton Bldg., Hudson Terminal, No. 50 Church St.
NEW YORK CITY

Do You Have Cars to Haul? The Davenport Locomotive Will Save Money



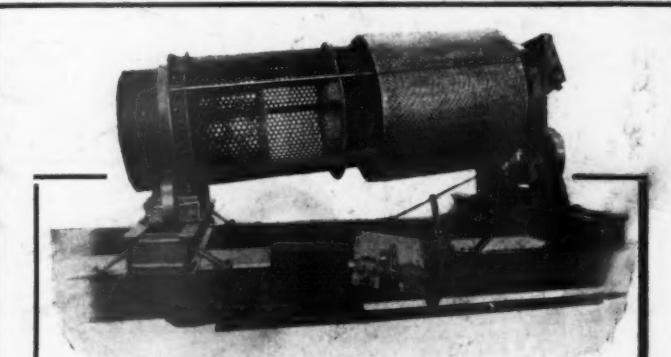
Special Designs for Special Purposes

Any Size, Any Gauge, Any Weight
Write for Prices and Particulars

DAVENPORT LOCOMOTIVE WORKS
DAVENPORT, IOWA

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SCREENS

The mechanical features of TISCO screens are such that a minimum of power is required to operate them.

All wearing parts being of TISCO MANGANESE STEEL insures long wear and a maximum of service at a minimum cost, unapproached for sizing broken stone, ore, coal, etc.

CATALOG?

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HIGH BRIDGE
NEW JERSEY



"LITTLE GIANT" LOADING BLASTED ROCK.
Diamond Portland Cement Co., Middlebranch, O.

Giant Boom Shovels, six sizes, 1½ to 5 cubic yard dippers. **Little Giant Shovels**, two sizes, 1 ¼ cubic yard dippers. **Revolving Shovels**, three sizes, ¾ to 1½ cubic yard dippers. **Steam or Electric Power. Traction Wheels or Railroad Trucks.** Send today for booklets.

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Steam and Electric Shovels

are the best that money can buy because they are correctly designed and substantially built. Every part is made of material which we know from our thirty years' experience in high class steam shovel building to be the best for the purpose. Before shipment each shovel is set up complete in our yards, thoroughly tested under full steam and all parts carefully inspected and adjusted. You are invited to witness this test and the shovel isn't shipped until both of us are satisfied that it is right in every respect. In addition to this, we give you the benefit of a 10 day trial test in your own quarry and you don't have to accept the shovel until we have demonstrated on your own work that it is just as represented. Every shovel we build is covered with an iron clad guarantee to give complete satisfaction. Write us today, giving a description of your material and the amount you wish to handle per 10 hours and we will promptly send full information, specifications, prices, etc., of a shovel which we will guarantee to do your work satisfactorily.

THE VULCAN STEAM SHOVEL CO.

Toledo, Ohio

NEW YORK OFFICE: 45 Broadway;
Telephone 4039 Rector

DENVER OFFICE:
305 Appel Bldg.

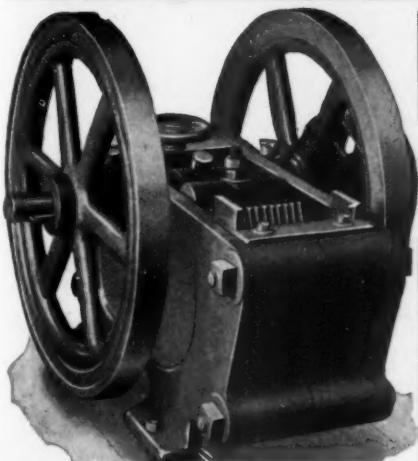
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MANGANESE STEEL

Parts for all makes of crushers, as
JAWS, CHEEKS, TOGGLES and BEARINGS
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STEAM SHOVEL TEETH, POINTS and BASES
Lips for Gold Dredges and Steam Shovel Dippers
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X = L=ALL STONE CRUSHER

Save Money by Crushing and Using Your Screenings.

Our Crusher is the Right Size and Right Price.

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Manufacturers of Ferguson Cement Tile Machines, Block and Brick Machines, Etc.



95-C IN SANDUSKY PORTLAND CEMENT COMPANY'S QUARRY

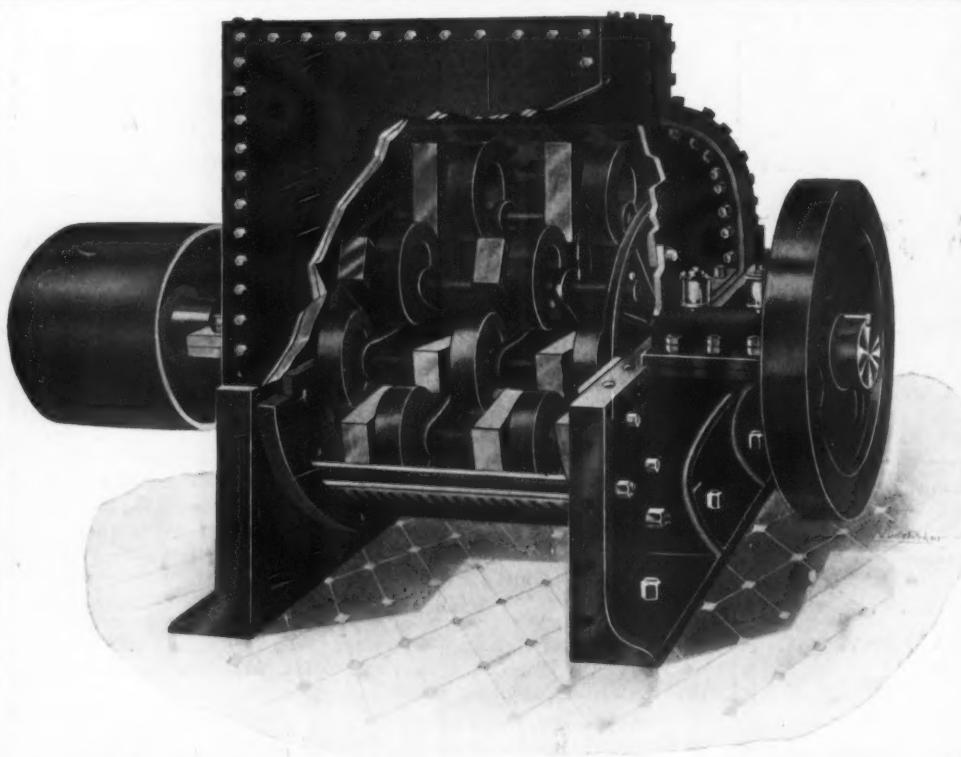
Bucyrus Shovels Are Loading Crushed Stone and Digging Blasted or Unblasted Cement Rock in the Leading Quarries in the United States.

THE BUCYRUS CO.

Branch Offices
NEW YORK
SAN FRANCISCO

Main Office & Works:
South Milwaukee, Wis.

Tell 'em you saw it in ROCK PRODUCTS



Pulverize Your Lime-stone, raw or burned, Sandstone, Pebbles, Brick Bats, Quartz, etc.

The Winchester Granite Brick Co., Winchester, Ky., write us they have pulverized 20,600 tons of Sandstone blasted from the Mountain Side at a maintenance cost of \$79.00—and are still grinding. The above machine is doing the business.

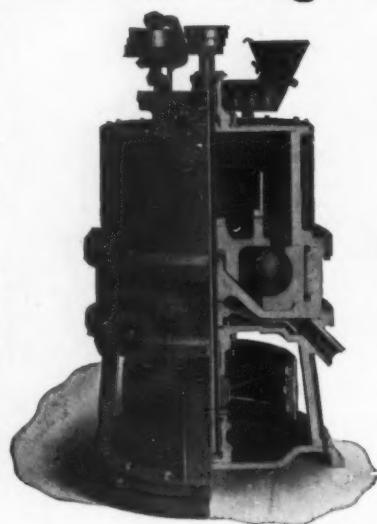
Made in Six Sizes.
All Guaranteed.

30 days' operating test at your works.

Write for circulars, price, etc.

AMERICAN PULVERIZER COMPANY
410 Jaccard Bldg., ST. LOUIS, MO.

The Fuller-Lehigh Pulverizer Mill



Cement Companies equipped with Fuller Mills advertise the fact that the consumer gets 38 pounds more of the IMPALPABLE POWDER or REAL CEMENT in every barrel of cement produced by The Fuller Mill than by any other

Produces Commercially

Cement having a higher percentage of Impalpable Powder than can be obtained by any other mill. Tests show that the tensile strength of a 1-5 mortar made with cement pulverized by the Fuller Mill is higher than the tensile strength of a 1-3 mortar made with cement pulverized to the fineness required by the Standard Specifications.

Lehigh Car, Wheel & Axle Works

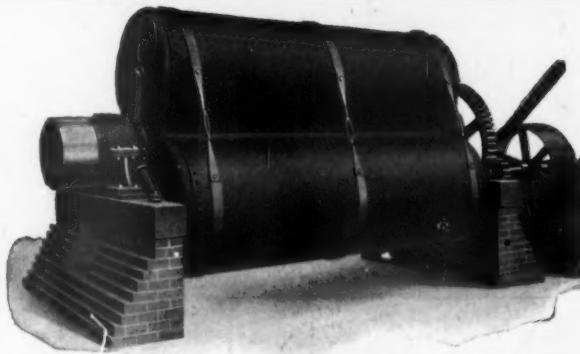
Main Office: CATASAUQUA, PA.

New York, N. Y.

Hamburg, Germany, Alsterdamm 7.

Kansas City, Mo.

Sent on Approval



U. S. Patent Aug. 13, 1907

WE will install our Multiple Tube Mill for any reliable concern on approval.

We are willing to do this to prove that our mill is the most economical pulverizing device in existence. We claim superiority over the ordinary tub mill in that the construction is different and an enormous amount of power is saved. The load is distributed equally around the center, about which it revolves while in operation.

Write for Bulletin

J. R. Alsing Engineering Co.

134 Liberty St.

New York, U. S. A.

GRINDING Mill Capacity is greatly increased, often doubled, by prompt removal of the fines as fast as formed.

In the old method of operation, the fines were fed in with the coarse particles, cushioning the crushing action, and retarding the whole operation.

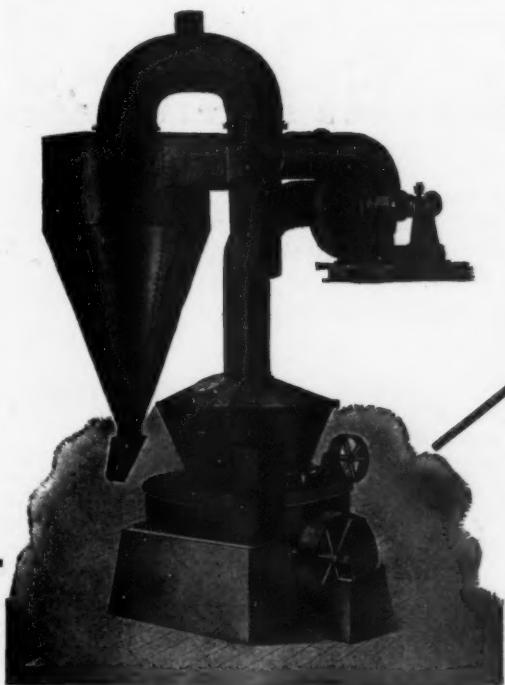
Osborne Pneumatic Apparatus removes the fines continuously, leaving the coarse particles for further reduction.

An Osborne Apparatus costs much less than a double equipment of grinders. Shall we send our catalogue?

Better ask for catalogue of Reilly Multicoil Feed Water Heaters at the same time.

The Griscom-Spencer Co.

90 West Street, New York



65%

SAVING

IN COST OF

GRINDING COAL

AT A

CEMENT PLANT

A Cement Manufacturer ground in 1907—Thirteen Thousand Tons Coal

Using the Raymond Roller Mill with Air Separation

The cost to him for grinding was per ton—Twelve and One Half Cents.

In 1906—The same manufacturer ground his coal in a Ball and Hammer Mill, with the necessary auxiliary machinery instead of Air Separation.

The cost to him for grinding was per ton—Thirty Three and Six-tenths Cents.

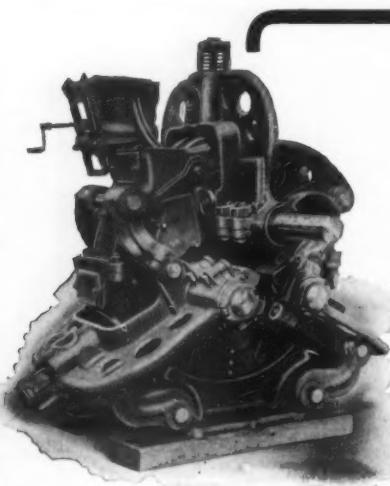
We cite these figures as simply typical of the extremely satisfactory results secured by our customers with the Raymond System,

in grinding and handling all kinds of materials, from coal to dry paint colors, from limestone to alfalfa.

To the manufacturer who grinds any material whatsoever, we say—"You are probably losing profits if you are not using the Raymond System of Grinding and Separating." We are always ready to "show you."

Raymond Brothers Impact Pulverizer Co. 517 Laflin St., CHICAGO

Tell 'em you saw it in ROCK PRODUCTS



MAXECON

Means MAXimum of ECONomy

Years of experience with the assistance of our hundreds of customers has found THE SOLUTION OF GRINDING HARD MATERIALS. The MAXECON PULVERIZER combines highest EFFICIENCY, greatest DURABILITY and assured RELIABILITY. Uses the LEAST HORSE POWER per capacity. Embodies the features of our Kent Mill with improvements that make it MAXECON.

**WE DO NOT CLAIM ALL of the CREDIT
for this achievement**

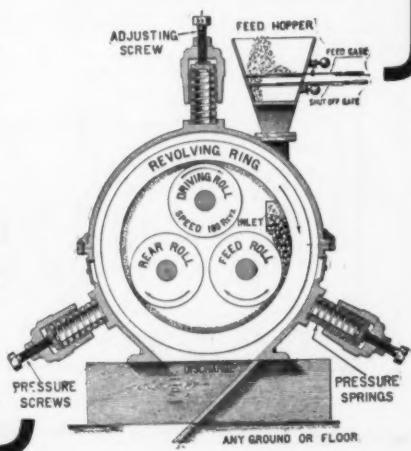
We have enjoyed the valuable suggestions of the engineers of the Universal Portland Cement Co. (U. S. Steel Corp.), Sandusky P. C. Co., Chicago Portland C. Co., Marquette Cement Mfg. Co., Western P. C. Co., W. H. Harding, Prest., Coplay P. C. Co., Cowham Engineering Co., Ironton P. C. Co., Alpena P. C. Co., Castalia P. C. Co., Pennsylvania P. C. Co., and many other patrons.

THE RING WOBBLERS

The FREE WOBBLING POUNDING RING instantly and automatically ADAPTS its position to the variations of work. Its GRINDING ACTION is DIFFERENT than any other; besides the STRAIGHT rolling action of the rolls, the SIDE to SIDE motion of the ring makes the material subject to TWO crushing forces and DOUBLE OUTPUT results.

KENT MILL CO.

170 BROADWAY, NEW YORK CITY
LONDON, W. C., 31 HIGH HOLBORN
CHARLOTTENBURG 5, WINDSCHEID STRASSE 40, BERLIN



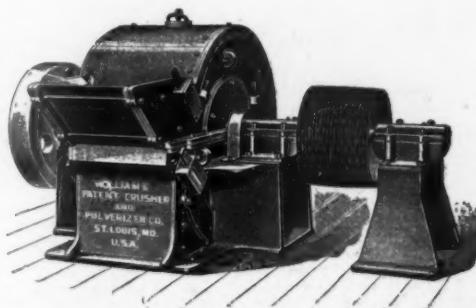
Williams Raw Material Grinders



THE NEW WILLIAMS

The "New Williams" Universal, our fine grinder, is used for preliminary work ahead of the Tube Mill, capacity No. 3 size, 800 bbls. in 22 hours, 95 per cent. through 20 mesh, with 40 to 50 horse power.

Also used extensively for fine grinding on Gypsum, Lime, Coal and Shale.



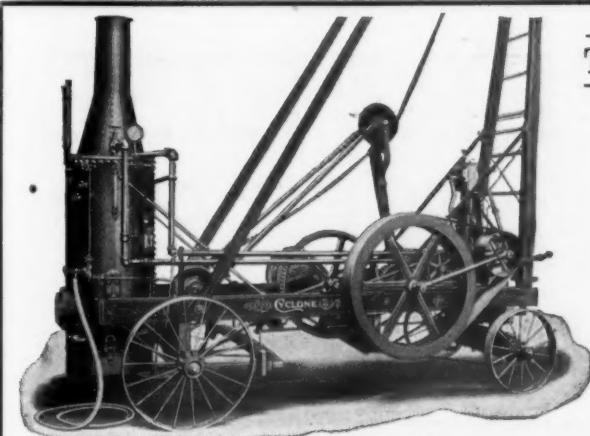
The "Vulcanite" Mill, our coarse grinder, prepares raw material ahead of Roller Mills. The No. 3 size has a capacity of 20 tons per hour, fineness, $\frac{1}{2}$ -inch, $\frac{1}{4}$ -inch and $\frac{1}{8}$ -inch, horse power 40 to 45.

Over 1500 mills now in use.

Bulletin No. 12 gives further details.

**The Williams Patent
Crusher & Pulverizer Co.**

{ Works: St. Louis, Mo.
Sales Office: Old Colony Building, Chicago
San Francisco Offices: 428 Monadnock Building



THE CYCLONE WINS BY BIG ODDS

The Competitive Drilling Test

just finished at the Dolese-Shepard Company's quarry at Gary, Illinois, has proven the superiority of Cyclone Drills, finishing far ahead of any of the six drills in the test. Total number of feet drilled, 1595; drilling 5 ft. 10 in., per hour, or 1 ft. 6 in. more per hour than the highest record of any other machine. Holes were all 5 $\frac{1}{2}$ inches diameter in hard lime-stone rock; not one penny was spent for repairs of any character.

This is just another record of the many which the Cyclone Drill has to its credit; let us tell you more about Cyclone Drills and their records.

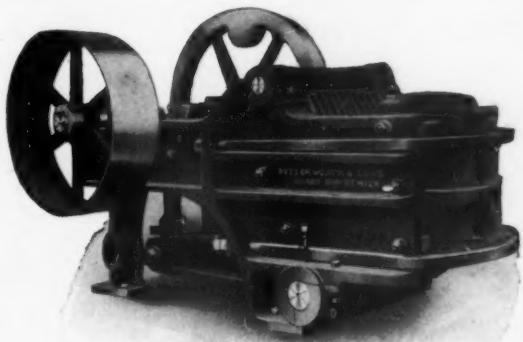
WRITE US TO-DAY—DEPT. "C"

THE CYCLONE DRILL COMPANY,

CHICAGO OFFICE—419 Fisher Bldg.

ORRVILLE, OHIO

NEW YORK OFFICE—1456 Hudson Terminal Bldg.



CRUSHERS

for soft rocks, burnt lime, etc.

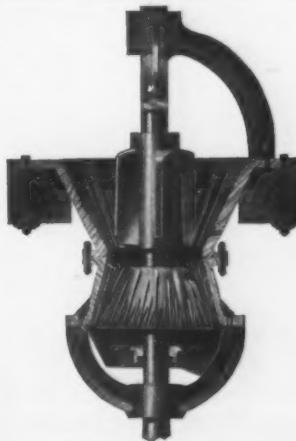
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We design modern Plaster Mills and make all necessary Machinery, including Kettles, Nippers, Crackers, Buhrs, Screens, Elevators, Shafting, etc.

SPECIAL CRUSHER-GRINDERS FOR LIME HYDRATORS

BUTTERWORTH & LOWE

17 Huron Street, GRAND RAPIDS, MICH.



GET THE BEST Finest Line of Gypsum Machinery

MADE

KETTLE CRUSHER NIPPERS

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MOGUL NIPPERS. OPEN DOOR POT CRUSHERS

Best Mills in the United States Have Them

McDONNELL BOILER & IRON WORKS, Des Moines, Iowa, U. S. A.

"Formerly Des Moines Mfg. & Supply Co."

SPECIAL MACHINERY AND FORMULAS

FOR THE MANUFACTURE OF

**WOOD FIBRE PLASTER, FIRE PROOFING
AND KINDRED PRODUCTS**

We furnish the latest improved FIBRE MACHINE, (fully patented) also FORMULAS, on a reasonable proposition. The strongest companies and oldest manufacturers are operating under my contracts.
WRITE FOR TERRITORY

The Ohio Fibre Machinery Co.

J. W. VOGLESONG,
GENERAL MANAGER

Elyria, Ohio

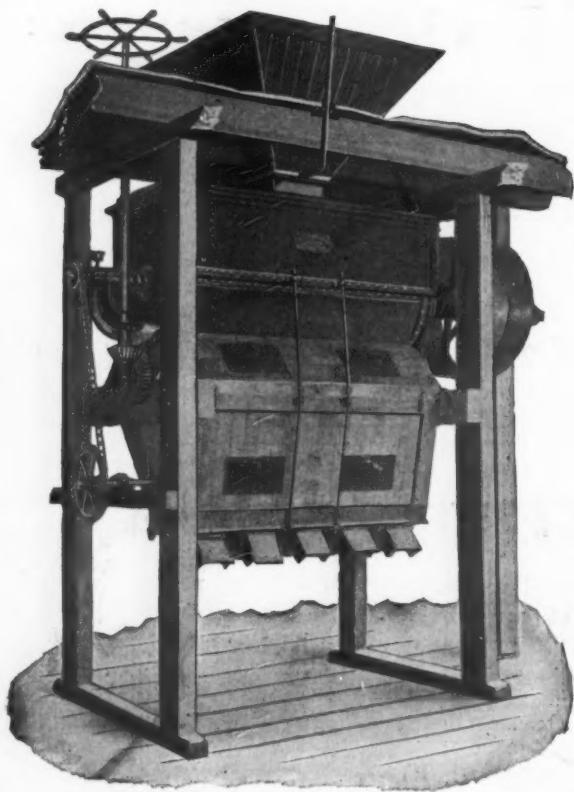
**KING'S WINDSOR CEMENT
FOR PLASTERING WALLS AND CEILINGS**

Buffalo Branch, CHAS. C. CALKINS, Manager
322 W. Genessee Street.

Not the hardest, but the toughest and best Wall Plaster made—Can be applied with less labor. Has greater covering capacity than any other similar material

J. B. KING & CO., 17 State Street, New York

Tell 'em you saw it in ROCK PRODUCTS



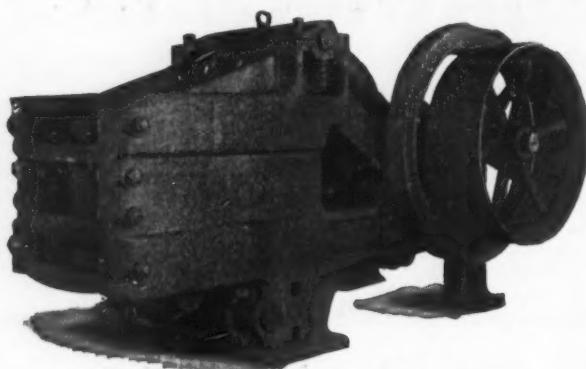
ENTERPRISE PLASTER MIXER

NOISELESS,
DURABLE and EFFICIENT.

For Mixing Hair Fibre, Wood Fibre and
Retarder with Dry Plastering
Materials.

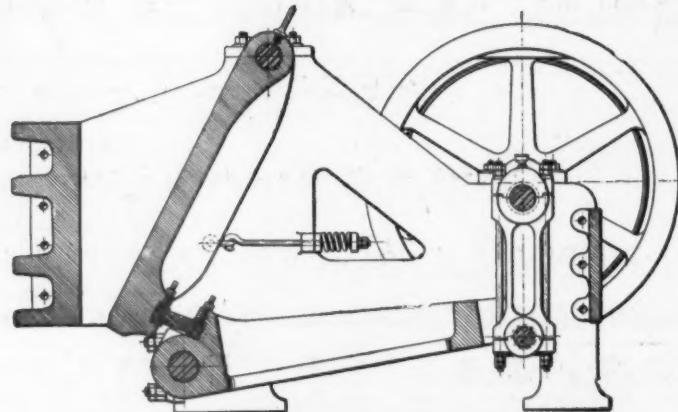
Calcinining Kettles

Jaw and Rotary Crushers for Gypsum, Reels,
Vibratory Screens, Hair Pickers and Trans-
mission for applying power.



EHRSAM NO. 4 JAW CRUSHER.

This machine will handle large chunks and reduce from 30 to 40 tons of
Gypsum per hour to 2½-inch maximum or smaller if wanted.



NO. 4 JAW CRUSHER, SHOWING SECTIONAL VIEW OF NIPPER.
The jaw opening at inlet is 18x28 inches.

The J. B. Ehrsam & Sons Mfg. Co.,
BUILDERS OF
COMPLETE EQUIPMENTS FOR PLASTER MILLS
Enterprise, Kansas

Stucco Retarder

Strong
Uniform
Fine Ground } RETARDER

We are the oldest Retarder firm in the United States, and above is our motto. New fire-proof plant and prompt service.

FREE SAMPLE ON REQUEST

Chemical Stucco Retarder Co.

WEBSTER CITY, IOWA.

INCORPORATED 1895

The Gandy Belting Co., Baltimore, Md.
Dear Sirs:

I take pleasure in stating that we have for eight years been using your Gandy Belting on two elevators, one of which is 78 feet long, making 156 feet of 18 in. 10-ply belt on that elevator and from which we get splendid service.

The belts give us a year's service and carry about 150,000 (one hundred and fifty thousand) tons of ore of 1½-in. mesh.

Yours truly,
THE EAGLE ORE COMPANY.

Another example of service in a different kind of work. The Gandy Belt keeps pace with the hardest conditions of modern engineering.

For driving, elevating and conveying. Unaffected by heat, steam, acid fumes or extreme conditions of temperature. It is one-third the cost of leather and 25 per cent cheaper than rubber. Send for our free book "Experiences With the Gandy Belt."

THE GANDY BELTING CO., Baltimore, Md.
New York Office, 88-90 Reade St.



ELEVATORS AND GANDY

CUMMER CONTINUOUS PROCESS

FOR
**CALCINING
GYPSUM**

NO KETTLES
USED

PLANTS IN
OPERATION

Great Saving in Cost of Manufacture and Quality of
Product Guaranteed.

The F. D. CUMMER & SON CO., Cleveland, O.

RETARDER Wood Fiber

**THE OHIO and BINNS RETARDER CO.
PORT CLINTON, OHIO**

Reliable Stucco Retarder=Strong=Uniform in Strength=

Duplicate power plant (electric and steam power) installed so as to preclude any possibility of shut down and consequent shut down of mixers who depend upon us for their supply of Retarder. We have a capacity large enough to supply every retarder user in the U. S. and Canada, and some to spare for Europe. Our mills are fireproof in every particular. Write us for prices and information.

**THE OHIO and BINNS RETARDER CO.
PORT CLINTON, OHIO**

in the Lime Light "Universal"

In the "lime" light of experience—i. e.—in the light of **lime** experience, the careful builder of the present will eschew all suggestion of familiar lime troubles by building his plastered walls with modern hard plasters and particularly by **finishing** with

UNIVERSAL

The Finish Without Lime

No plastered wall is as good as it might be, which is not builded with U. S. G. Hard Plasters and **finished with "Universal."**

No Architect who desires to maintain a distinguished place and prestige in his profession, can afford to neglect specifying "Universal" for the final plaster coat—particularly in the better class of residences and buildings.

No Contractor who values the **net economy** of a good job well done, can afford to disregard the specification of "Universal."

No Builder who wants things right, will jeopardize the life and beauty of his expensive mural decorations, by not insisting on an "Universal" finish—when he knows about it, and the majority of good builders do.

No Material Dealer Can Afford

not to carry and actively push "Universal"—if he be building his business for the future—if he value the reputation of being modern and alert—if he desire to hold old customers and **create new business with new commodities**—if he desire to **eliminate stock shrinkage** and **make more money with less labor and expense** on finishing materials.

We Help The Dealer Sell "Universal"

by supplying him generously with the snappiest, brightest kind of instructive and convincing Advertising Matter—a class of Advertising Literature such as will do him credit, when put into the hands of the most select home owners, bearing his own advertisement.

For instance—Write us Today for copy of the little "Universal" Booklet, "Here's Your Finish." Do this—it's good money in your pocket. Address our nearest office.

United States Gypsum Company

NEW YORK

CLEVELAND

CHICAGO

MINNEAPOLIS

SAN FRANCISCO

ANNOUNCEMENT

We are just closing our second year and are pleased to say, the high quality of our various products, together with our unexcelled service, has made so many friends for the "NIAGARA" brand of

Wood Fiber Plaster	Sanded Wall Plaster
Neat Cement Plaster	Stucco
Finishing Plasters	

that it has been necessary to increase the capacity of our Oakfield Mills. This has been done, and we therefore offer our many patrons and the trade generally QUALITY, SERVICE and CAPACITY sufficient to enable us to handle any volume of business promptly, and we would appreciate your order.

NIAGARA GYPSUM COMPANY

Mills: Oakfield, N. Y.

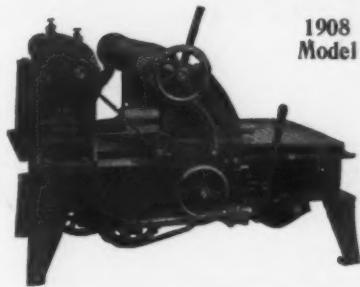
Office: Buffalo, N. Y.

CROWING FOR
PLYMOUTH CEMENT AND WOOD FIBER PLASTER
The Brand that's Made from Pure Gypsum Rock.
WRITE US FOR PRICES AND ADVERTISING MATTER.
Plymouth Gypsum Co.
Fort Dodge, Iowa

PLYMOUTH PLASTER
PLYMOUTH GYPSUM CO.
FORT DODGE, IOWA

The Shuart-Fuller Improved Fiber Machine

1908 Model



Has an automatic, proportional, increasing feed, which keeps grade of fiber uniform from start to finish, and holds machine to highest possible rate of production for the grade of fiber and number of saws. Does not begin with fiber and end with dust, nor fall off in rate of production on each log, from 40 to 80 per cent as do the ordinary non-increasing feed machines. Works logs up to 24x24 inches. No royalty string attached to sale. Pay no attention to misrepresentations of our competitors, but write for descriptive circular and terms to

The Shuart-Fuller Mfg. Co.
ELYRIA, OHIO

St. Louis, June 17, 1907.
Gentlemen:—We are just in receipt of advice from our New Mexico plant wherein they state that the Wood Fiber Machine recently shipped by you is doing all that we have asked of it and running very fine

ACME CEMENT PLASTER CO.

By Jas. R. Dougan, Sec.

If you are up-to-date, you know that

Beaver Board

Makes the Most Beautiful, Durable and Economical Covering for any Kind of Walls and Ceilings.

WISCONSIN LIME & CEMENT CO.

Selling Agents and Distributors for Central States

607 Chamber of Commerce
Chicago, Ill.

Write for Samples, Prices and Particulars

Tell 'em you saw it in ROCK PRODUCTS

Robert W. Hunt Jno. J. Cone Jas. C. Hallstead D. W. McNaugher
ROBERT W. HUNT & CO., Engineers
 Bureau of Inspection, Tests and Consultation
 New York—90 West St. Chicago—1121 The Rookery. Pittsburgh—Monongahela Bank Bldg.
 London, E. C., Eng.—31 Norfolk House. San Francisco—425 Washington St.
 Montreal—Can. Exp. Bldg. St. Louis—Syndicate Trust Bldg. Mexico City, Mex.—20 San Francisco St.
 Tests and Inspection of Cement—Reinforcing Steel and all Cement Materials and
 Products—Supervision of Construction and Tests of Concrete Structures—Reports on
 Cement Properties and Existing Concrete Structures—Design of Cement Plants and
 Inspection of Cement Machinery—Chemical and Physical Testing Laboratories
"All Manner of Tests on all Classes of Material"

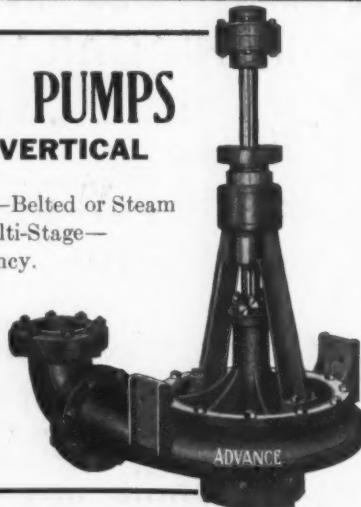
CENTRIFUGAL PUMPS

HORIZONTAL — VERTICAL

Direct Connected to Motors—Belted or Steam
 Driven—Single or Multi-Stage—
 Highest Efficiency.

Ask for Catalog 62.

**Advance Pump and
 Compressor Company**
Battle Creek, Mich.



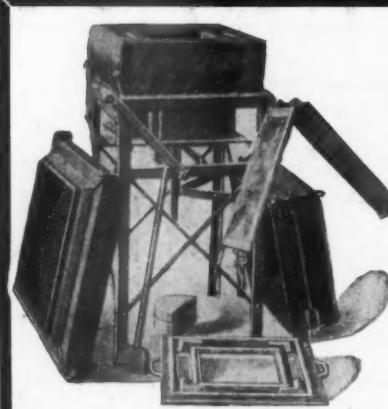
CLINTON METALLIC PAINT CO.

CLINTON, N. Y.

LARGEST AND OLDEST MANUFACTURERS OF
BRICK AND MORTAR COLORING

Be sure you get the genuine with the "Little Yellow Side-Label"
 on each package.

Let us tell you about Side-Walk Black.



A MONEY MAKER

LEARNER CONCRETE FLUE MACHINE

This machine makes double ventilated fire
 proof chimney blocks, as nine years of severe tests
 have proven.

You can produce two sizes of flue linings
 suitable for lining brick chimneys, either one or two
 at each operation.

You can also make porch columns, piers and
 lattice work on the same machine.

Beautiful line of ornamental molds for porch
 columns and balusters.

We manufacture a high grade line of concrete
 machinery and edged tools at low prices.

WRITE US YOUR WANTS

The P. H. LEARNER CO.
KOKOMO, IND.

BOOKS FOR THE TRADE

Architects and Engineers

- Hydraulic Engineering**
F. E. Turneaure and Adolph Black. Price \$3.00.
- Analysis of Elastic Arches of Steel, Masonry and Reinforced Concrete**
Joseph W. Baile. Price \$3.00.
- Theory of Steel-Concrete Arches and Vaulted Structures**
Wm. Cain. Price \$3.50.
- Concrete Country Residences**
Price \$1.00.
- Graphical Handbook for Reinforced Concrete Design**
John Hawkesworth, C. E. Price \$2.50.
- Architects' and Engineers' Handbook of Reinforced Concrete Construction**
L. J. Menach. Price \$2.00.
- Theory and Design of Reinforced Concrete Arches**
Arvid Reuterdahl. Price \$2.00.
- Treatise on Concrete, Plain and Reinforced**
F. W. Taylor and S. E. Thompson. Price \$5.00.
- Concrete Engineers' and Contractors' Pocketbook**
Wm. F. Tubbing. Price \$1.00.
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W. N. Twelvetrees. Price \$1.90.
- General Specifications for Concrete Work as Applied to Building Construction**
Wilbur J. Watson. Price \$0.50.
- American Engineering Practice in the Construction of Rotary Portland Cement Plants**
B. B. Lathbury and C. Spackman. Price \$2.00.
- Strength of Materials**
Edward R. Maurer. Price \$1.00.
- Highway Construction**
Austin T. Byrne and Alfred F. Phillips. Price \$1.00.
- Gas Engines and Producers**
L. S. Marks and S. S. Wyer. Price \$1.00.
- Refrigeration**
Chas. Dickerman and Francis H. Boyer. Price \$1.00.
- Heating and Ventilation**
Charles L. Hubbard. Price \$1.50.
- Plumbing**
Wm. Beall, Gray and Chas. B. Ball. Price \$1.50.
- Estimating**
Edward Nichols. Price \$1.00.
- Building Superintendence**
Edward Nichols. Price \$1.50.

Cement and Lime Manufacturers

- Manufacturer of Hydraulic Cement**
A. V. Bleininger. Price \$1.25.
- Limes, Cements and Mortars, Concretes, Mastics, etc.**
G. R. Burnell. Price \$0.60.
- Portland Cement: Its Manufacture, Testing and Use**
David B. Butler. Price \$5.00.
- Instructions to Inspectors on Reinforced Concrete Construction**
Geo. P. Carver. Price \$0.50.
- Lime, Mortar and Cement**
A. I. Dibbin. Price \$2.00.
- Cements, Limes and Plasters**
Edwin C. Eckel. Price \$6.00.
- Practical Treatise on Limes, Hydraulic Cements and Mortars**
Gen. Q. A. Gillmore. Price \$4.00.
- Mortars, Plasters, Stuccos, Concretes, Portland Cements and Compositions**
F. Hodgson. Price \$1.50.
- Experimental Researches upon the Constitution of Hydraulic Mortars**
H. LeChatelier. Price \$2.00.
- Concrete Factories**
Robert W. Lesley. Price \$1.00.
- Portland Cement: Composition**
Richard K. Meade. Price \$3.50.
- The Constitution of Hydraulic Cements**
S. B. Newberry. Price \$0.50.
- Manufacture of Concrete Blocks**
Wm. M. Torrance and others. Price \$1.50.
- Practical Cement Testing**
W. Purves Taylor. Price \$3.00.
- Notes on the Testing and Use of Hydraulic Cement**
Fred P. Sutcliffe. Price \$1.00.
- Calcareous Cements**
G. R. Redgrave and Charles Speckman.
- "Portland Cement from a Financial Standpoint"**
By Edwin C. Eckel, C. E. Price \$2.00.
- "Plastering—Plain and Decorative"**
By Millar. Price \$7.50.

Cement Users

- Foundation and Concrete Works**
E. Dobson. Price \$0.60.
- The Uses of Hydraulic Cement**
Frank Harvey Eno. Price \$1.00.
- Portland Cement for Users**
Henry Faifa and D. B. Butler. Price \$1.20.
- Cements, Mortars and Concrete**
Myron C. Falk. Price \$2.50.
- Reinforced Concrete**
W. H. Gibson and W. L. Webb. Price \$1.00.
- Concrete System**
F. B. Gilbreth. Price \$5.00.
- Hand Book of Cost, Data**
Halbert P. Gillette. Price \$4.00.
- Concrete Construction**
H. P. Gillette and C. S. Hill. Price \$5.00.
- Cement Workers' and Plasterers' Ready Reference**
H. G. Richey. Price \$1.50.
- Notes on Testing and Use of Hydraulic Cement**
Fred P. Spalding. Price \$2.00.
- Reinforced Concrete**
A. W. Buel and C. S. Hill. Price \$5.00.
- Concrete**
Edward Godfrey. Price \$2.50.
- Reinforced Concrete**
C. F. Marsh and Wm. Dunn. Price \$7.00.
- Practical Treatise on Foundations**
W. Patton. Price \$5.00.
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Thomas Potter. Price \$3.00.
- Cement and Concrete**
Louis C. Sabin. Price \$5.00.
- Practical Reinforced Concrete**
H. B. Andrews. Price \$2.00.
- Concrete and Reinforced Concrete Construction**
Homer A. Reid. Price \$5.00.
- Principles of Reinforced Concrete Construction**
F. E. Turneaure and E. R. Maurer. Price \$3.00.
- Handbook on Reinforced Concrete**
F. D. Warren. Price \$2.50.
- Sewers and Drains**
Anson Marston. Price \$1.00.

ROCK PRODUCTS, 355 Dearborn Street, CHICAGO

Tell 'em you saw it in ROCK PRODUCTS

Concrete Blocks MADE BY CENTRIFUGAL FORCE

Strictly a High Class Factory Proposition

Speedy and Economical. The machine does all the work except the original mixing and piling up the finished product.

No Tamping. The mixture is poured into the moulds, then revolved rapidly, producing a pressure of thousands of pounds, uniformly, on every part of the block. The excess water is then extracted as a fine mist, and in about sixty seconds the blocks are ready to be removed from the moulds.

The Way it is Done. Take a West Slush Mixture of Portland Cement with any suitable aggregate and after a thorough mixing pour into the moulds successively until all are filled. Then throw the belt upon the service pulley for one minute or less at a high speed with the development of tremendous pressure in the fully perfected Centrifugal Machine. Remove the finished blocks from the molds and leave them on the pallets for a few hours. The blocks are then ready for storage in the yard or can be used in the wall within 12 hours. Fully protected by patents. Standard size machines in operation more than 2 years.

**Centrifugal Concrete
Machine Company**

805 Corn Exchange Bank Bldg.
CHICAGO, ILL.



This machine makes 600 blocks in a 10-hour day, 8"x8"x16"

Red, Brown, Buff and Black



**MORTAR
COLORS**

The Strongest and
Most Economical
in the Market.



Our Metallic Paints and Mortar Colors are unsurpassed in strength, fineness, and body, durability, covering power and permanency of color. Write for samples and quotations.

CHATTANOOGA PAINT CO.

Chattanooga, Tennessee

WHY PAY MORE?

100,000 Pounds Pressure

A Hand Lever Concrete Press
at a Modest Price

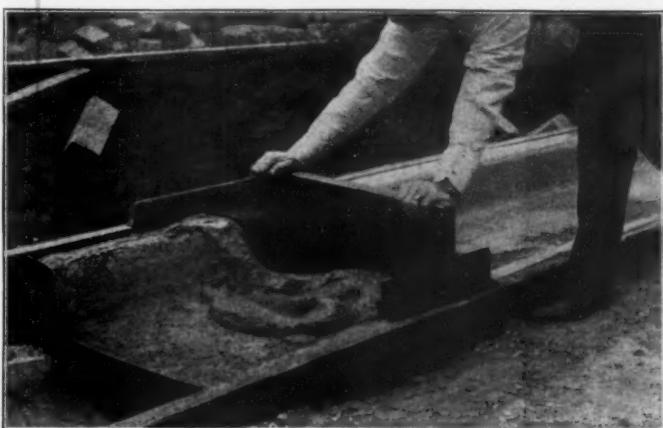
MAKING

HOLLOW
VENEER
HEADER-BOND
BLOCKS
and Brick

Collapsible Steel Culvert Forms

CATALOGUE FREE

AMERICAN CEMENT MACHINERY CO., St. Louis, Mo.



The Combined Gutter and Curb Finisher No Expert Required

Patented October 18, 1904

With this tool there is scarcely any limit to the amount of curb and gutter that one man can finish in a day. Its operation can be learned in an hour's time.

The Finishing has always been one of the most expensive items in connection with this work.

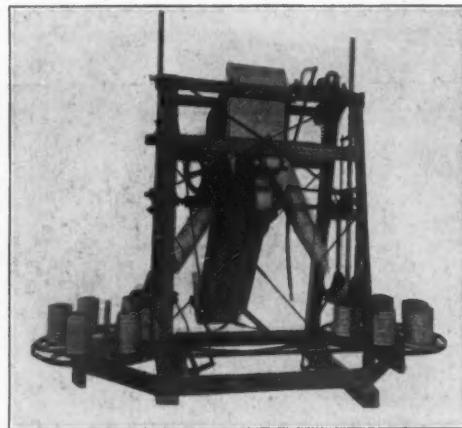
With our "Former" more work can be done at much less expense, in fact for less than one half the usual cost.

For full particulars, address

CARLON CONSTRUCTION CO.
Oskaloosa, Iowa

Tell 'em you saw it in ROCK PRODUCTS

**THE
McCracken Double Tile Machine**



The McCracken Double Tile Machine makes all sizes of cement tile from 4 to 16 in. in diameter at the rate of from 10 to 20 tile per minute. Also makes building blocks or construction tile 8x8x16 at the rate of 2000 to 3000 per ten hour day.

The machine will make two different sizes of tile at the same time or building blocks and tile at the same time, or either end of machine can be used without using the other.

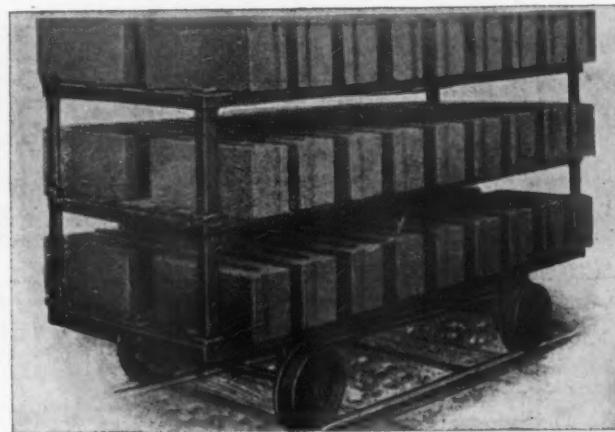
The machine has no cams and runs just as smooth at high speed as when running slow. Takes less labor per 1000 tile than any other machine.

Tile is packed so hard that the large sizes can be carried without the use of pallets. Machine is very simple and strong and runs very light, and elevator can be started and stopped without stopping the machine.

See the McCracken Machine before you buy. Write to

The Sioux City Cement Machinery Company
219 4th Street, SIOUX CITY, IOWA

**The Chase Roller Bearing Car
FOR CEMENT, BLOCK AND TILE**



**BOTTOM AND SIDE DUMP CARS, TRANSFER
CARS, TURNTABLES, SWITCHES, ETC.**

You cannot afford to overlook the necessity of handling your material and product as economically as your competitor. Our goods will help you do this.

WRITE US FOR CATALOG AND PRICES

Chase Foundry Manufacturing Co.
COLUMBUS, OHIO

DOES IT PAY?

THE Concrete Sand and Stone Co., of Youngstown, Ohio, is running a full page advertisement monthly in ROCK PRODUCTS. Here's what Manager A. A. Pauly says about it:

“We get enquiries from all over the world and are satisfied that ROCK PRODUCTS has been instrumental in aiding our business materially, because during most of our business career it is the only paper we have used.”

“We consider that ROCK PRODUCTS reaches the people, and is in close personal touch with the men ‘behind the guns.’ We have recently closed a contract with Buenos Ayres manufacturers which already amounts to \$30,000, and probably will exceed five times this amount, as a direct result from our ad. in ROCK PRODUCTS.”

“We figure that the personal co-operation of your editorial and field forces has been instrumental with our general publicity in ROCK PRODUCTS, in placing several hundred thousand dollars worth of business.”

Does It Pay?

Ask Mr. Pauly. His address is Youngstown, Ohio. There are others of whom similar information may be obtained. Lots of 'em. We'll tell you about them later.

Rock Products

355 Dearborn Street, CHICAGO

APRIL 22, 1910.

McIntosh Automatic Sand-Cement Brick Machine

Weight, 11 tons.

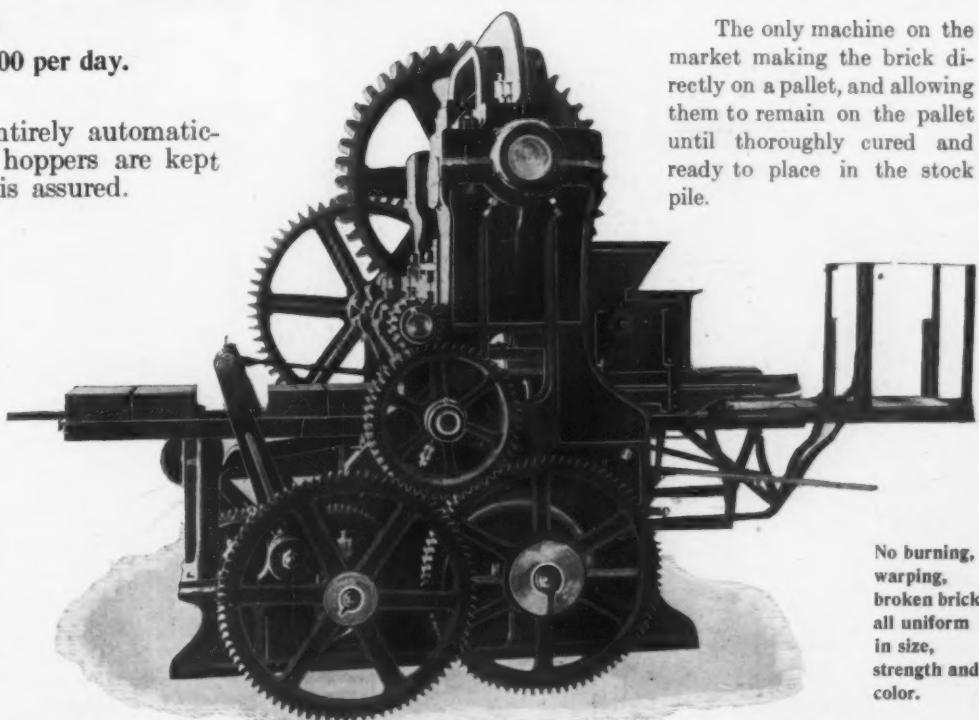
Guaranteed Capacity, 20,000 per day.

As the McINTOSH works entirely automatically, if the material and pallet hoppers are kept supplied, the guaranteed output is assured.

Makes eight (8) brick on a pallet
at each revolution, and puts the
same TREMENDOUS PRESSURE
on every brick.

Send us the cost of Sand, Cement and labor in your vicinity and we will give you the approximate cost of manufacturing SAND - CEMENT BRICK with our equipment.

Write for our new catalogue describing our machine and the complete installation of a modern Cement Brick Plant, also valuable information regarding the manufacture and curing of Cement Brick.



The only machine on the market making the brick directly on a pallet, and allowing them to remain on the pallet until thoroughly cured and ready to place in the stock pile.

No burning,
warping,
broken brick;
all uniform
in size,
strength and
color.

OKLAHOMA CITY
OKLAHOMA, U.S.A.

Oklahoma & Texas Cement Brick Co.

SAND LIME OR SILICATE BRICK



This plant located at South River, N. J., was formerly intended to operate under the "Division System" but is now being reconstructed to conform in every detail to the Wiebe-Hydro-Lime-Silicate-Process, and will be when completed the largest plant in the United States with a daily capacity of 100,000 brick.

SAND DRYER

High efficiency and durability

RESUME

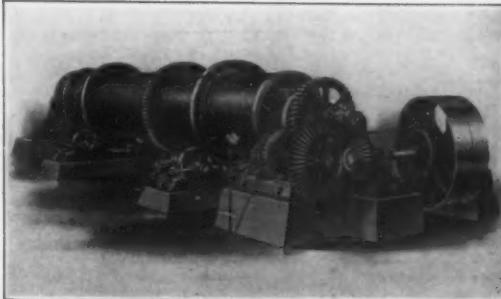
Dating as far back as 1901, when the manufacturing of commercial silicate brick was introduced into this country, no system has been more successful than the so called "Silo" or "Division" method.

In the ratio that the Silo or Division Process is superior to all other systems hitherto employed, in that proportion the Wiebe-Hydro-Lime-Silicate process is superior to the Division methods.

All other processes are commercial impossibilities, and those who are operating under these old methods are losing money and producing an inferior quality of brick.

MANUFACTURED under the Wiebe Hydro-Lime-Silicate-Process, and by our specially designed machinery, have been acknowledged by leading engineers, architects and organizations of New York City to be the most perfect sand brick in the country. Compression as well as transverse strength, and its non-absorptive qualities far excel the requirements of the city.

BY THE INTRODUCTION of our process and special machinery in this country, a large and profitable field is thrown open to the American manufacturer engaged in this industry. The product from same is perfect, beautiful, and unexcelled.



Hydro-Vapor Preparation Machine
Eliminates your doubts and worries. No sand-lime-brick plant is complete or successful without this machine. Receiving the material from the Silo, it prepares and delivers same in an absolutely perfect condition for the press.

Do you wish to know WHY our process is superior to all others? If you have any experience in the production of silicate brick, and will allow us to show you the merits of our process, you can easily understand why, and you will then readily appreciate the merits thereof. If you are interested we will gladly enter into any detail necessary to demonstrate the superiority of our system over all others.

Engineers, Designers, Builders of
Factories for the Manufacture of
High Grade Silicate Brick, Colored and
Fancy Brick, Roofing and Wall Tile.
Sole Owners of The Wiebe Hydro-
Lime-Silicate-Process and Special
Patented Machinery.



WIEBE ENGINEERING COMPANY

- - - 170 Broadway, NEW YORK

Tell 'em you saw it in ROCK PRODUCTS

Anchor Concrete Block Machines



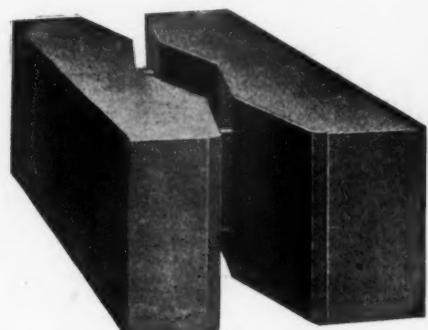
ANCHOR MACHINE IN POSITION
TO RECEIVE MIXTURE

THEY HAVE STOOD THE TEST OF TIME AND MADE GOOD,
WITH A PROFIT TO THE USER, TOO.

Anchor continuous air space blocks guaranteed frost and moisture proof.

Anchor blocks are bound together with firm $\frac{1}{4}$ inch galvanized iron rods 8 inches long and turned one inch at each end.

Standard Anchor Machines make blocks that lay in the wall 8 in. by 24 in., any width from 8 in. to 12 in.



THE FAMOUS ANCHOR BLOCK.
ENDORSED BY ARCHITECTS EVERYWHERE.

Anchor Jr. Machines make blocks that lay in the wall 8 in. by 16 in. and any width from 8 in. to 12 in.

ONE ANCHOR MACHINE, PLUS ENERGY, BACKED
BY A LITTLE CAPITAL MEANS THE PRODUCTION OF
HIGH-GRADE BUILDING ALWAYS IN DEMAND.

WRITE FOR CATALOGUE AND PRICES.

ALL MACHINES SOLD DIRECT TO THE TRADE.

Anchor Concrete Stone Company
ROCK RAPIDS, IOWA

The Improved Peerless One Man Cement Brick Machine

Equipped with new tamping device, which tamps ten bricks in the machine at one operation, making 12,000 perfectly formed bricks in ten hours.



The superiority of the Peerless Brick Machine was demonstrated conclusively at all of the recent conventions.

It is the greatest invention in the industry. Simple, strong and durable. Combines all the advantages of every other machine at the smallest cost.

The most successful and most easily operated one-man brick machine ever made.

Write at once for particulars.

Peerless Brick Machine Co.
15 North Sixth St., MINNEAPOLIS, MINN.

\$5,000.00 Profit the First Year

With an investment of Five Thousand Dollars and doing a \$15,000.00 business a little factory in Western Iowa at the end of the first year shows a net profit of \$5,000.00

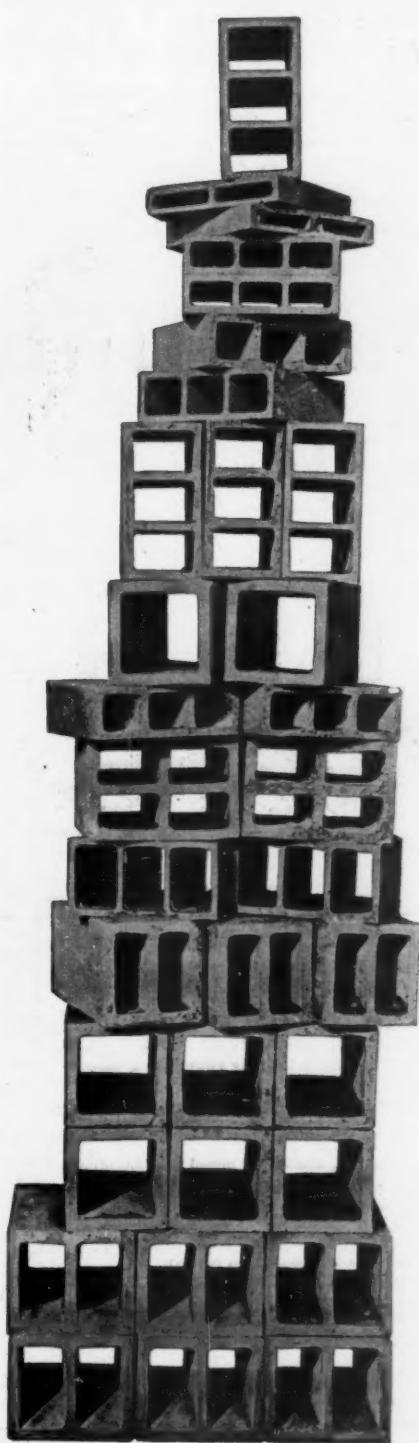
Just think of it! $33\frac{1}{3}$ per cent profit on the total amount of the business and 100 per cent profit on the investment.



You can do equally as well. Our booklet "Money in Cement Tile" tells you how. Write for it today—it's free.

**THE
CEMENT TILE
MACHINERY CO.**

"Manufacturers of the Schenk Cement Drain Tile Machine"
Rath St., Waterloo, Iowa.



Has The First *Pauly* Concrete Tile Plant Been Successful?

This question, which is usually first asked us by interested parties, is best answered by two facts:—1. During the year of 1909, the demand in Youngstown, Ohio, could not be satisfied, and (2) the plants capacity output is sold until the middle of the summer of 1910, in the City of Youngstown alone. In this connection it might be stated also that 4 tiles of our most common size, 8x8x16, can be manufactured from one cubic foot of concrete, with a labor cost of 50 per cent of the cost of concrete anywhere east of the Mississippi.

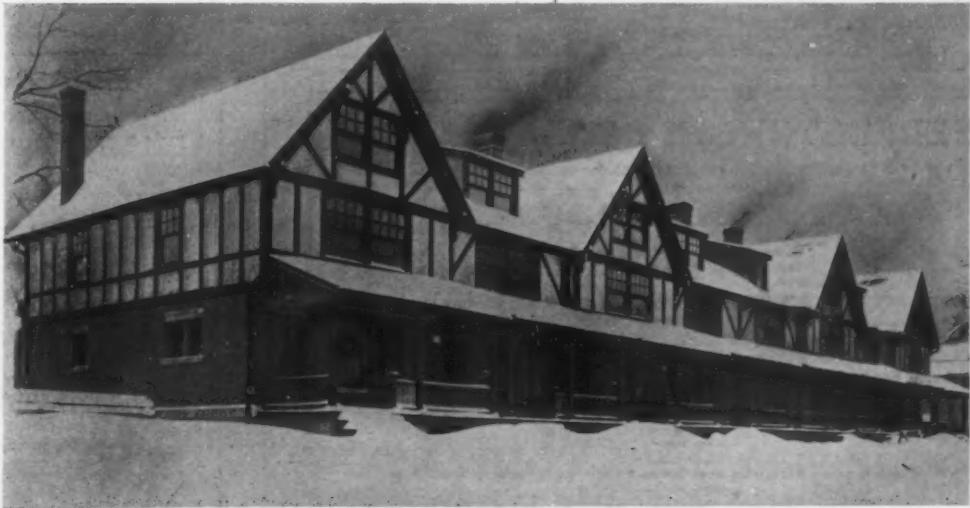
A weatherproof home of fireproof material can now be built for almost wooden construction cost. These points have been clearly demonstrated in Youngstown by practical use of *Pauly* Concrete Structural and Fireproofing Tile, in a variety of buildings. The result gained has not only been a financial success, but also an enviable position in the estimation of the entire building public.

Persons interested in this practical and profitable phase of the concrete business, are always welcome by the The Concrete Stone & Sand Co., Youngstown, Ohio, where they will be shown every detail of the initial factory.

Our 1910 Catalog

Gives the method of manufacture, fire and compression test data, and the endorsements of local architects and other building authorities. Also many other articles and illustrations of interest to the general public. May we send you, postpaid, a copy of our Catalog?

**The Concrete Stone & Sand Co.
Youngstown, Ohio.**



Tell 'em you saw it in ROCK PRODUCTS



THERE IS MONEY IN MAKING

Concrete Building Blocks

Because they are coming into universal use. Buildings built of them cannot decay, or burn, nor do they ever require painting or repairing.

Every Contractor, Carpenter and Builder can Increase his profits by installing a

HERCULES BLOCK MACHINE

The ONLY machine that will make any and every size, style and design of building block.

The ONLY machine that will make Water Tables, Sills and Lintels of any size up to six feet long.

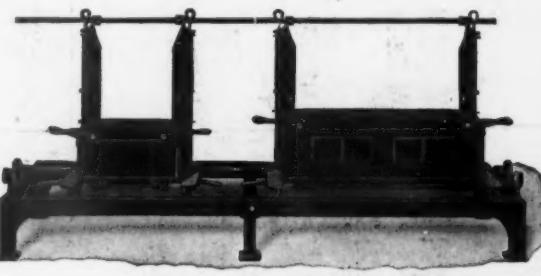
The ONLY machine that allows for using a Coarse Wet Mixture, making a REALLY CONCRETE BLOCK.

The ONLY machine that expands to meet every requirement of the user.

Hercules Block Machines

have been giving results for years. They are the oldest and best established machines on the market.

It will pay you to investigate.—Send for Catalogue today.

**Century Cement Machine Co.**

288-298 St. Paul Street,

Rochester, N. Y.



Newest—Latest—Best
THE KELLER VISIBLE CONTINUOUS CONCRETE MIXER

for hand or power. Will handle all the material three men by hand or five men by power can put into it. Automatic Water Feed.

Adjustable force cement and sand feeder, wet or dry. A World Beater.

G U A R A N T E E D

We are also the manufacturers of the celebrated Keller Cement Block Machine, Nos. 1 & 2; also The Keller Junior, with Brick Making attachment. The Keller Adjustable Cap and Sill Mold, Porch Column Molds, Staple Holders, Post Machines, etc.

Write us for further information and prices.

THE KELLER CONCRETE MACHINE CO.
KEARNEY, NEBRASKA

AGENTS WANTED.

Perfection at Last Attained in the Concrete Block Industry

The Perfection Power Block Machine is the only Power Block Machine on the market, making a Hollow Concrete Building Block under Heavy Pressure and at Great Speed.

Machines have been in constant use since July 1st, 1905, with practically no expense for repairs.

The machine handles sand, gravel, crushed rock, slag and coloring materials perfectly.

All materials accurately measured, thoroughly mixed and uniformly pressed under 200,000 pounds pressure.

Makes 8, 9 and 12x8x24 inch blocks in five faces, and fractional and angle blocks.

Machine can be arranged to make Two Piece and Faced Blocks if desired.

All machines delivered, set up and put in operation to show a guaranteed capacity of 60 blocks (12x8x24 inch) per hour with five men.

Blocks perfectly cured in 24 hours in Vapor Curing Kilns of our own design.

Full details, catalog, testimonials, etc., sent upon request.

THE PERFECTION BLOCK MACHINE CO.
SIOUX FALLS, SOUTH DAKOTA.

PERFECTION IN BLOCK MAKING

If you wish to attain this you should combine these three important features:

**Wet Process, Face Down,
Damp Curing.**

The PETTYJOHN INVINCIBLE Machine does this, and is the only machine that does. Tandem Invincible makes two blocks at once. Price \$65.00 and up. Single Invincible, \$35.00 and up. With our Triple Tier Racking System green blocks can be stacked three high direct from machine with inexpensive home-made rigging. Plans and blue prints free to customers. It economizes space, reduces off-bearing distance and above all insures slow, even, damp and perfect curing and bleaching.

Write for our latest edition of "Stone Making," a book of valuable data, just off the press—FREE

THE PETTYJOHN COMPANY

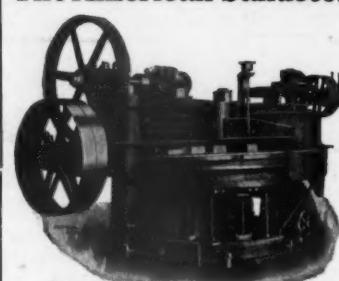
614 North Sixth Street

Terre Haute, Indiana

The American Sandstone Brick Machinery Co.

SAGINAW, MICH.

Complete Sandstone Brick Plants or Partial Equipments Installed Under Absolute Guarantees as to Capacity, Quality, and Cost of Production.



Improved Saginaw Rotary Press.

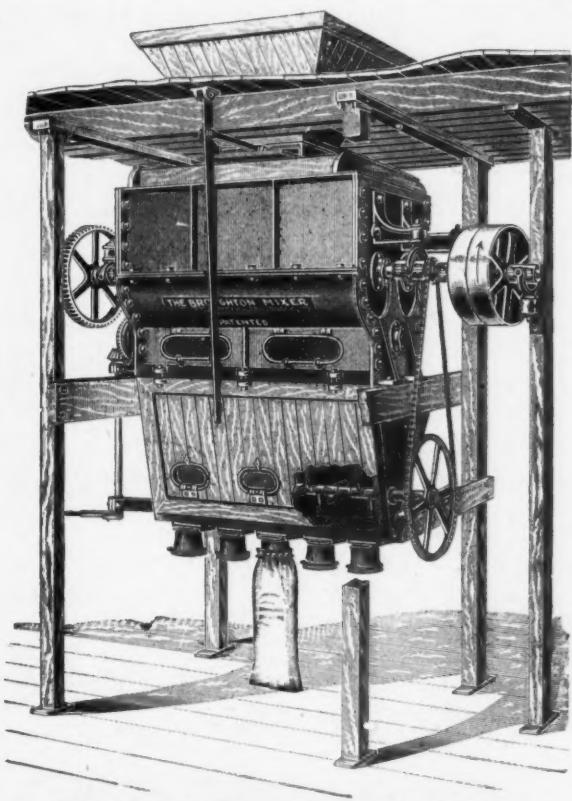
Built either right or left handed in three sizes of capacities of 800, 1400 and 2200 brick per hour. Can be equipped with extra table for making face and fancy brick on which double pressure is exerted.

WE are the oldest manufacturers of Sand Lime Brick Machinery in the U. S. today, and have more successful plants in operation than any other Company. Why not profit by our experience? Send us samples of your sand and let us advise you as to its quality for brick purposes and what machinery you will require to produce the best results. Write for catalogue "C" describing our system in detail.

1910.

1
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rates





The most thorough and efficient
Mixers of Plaster, Cement and
Dry Materials. Send for Circular.

W. D. DUNNING, Water St., Syracuse, N.Y.

Track AND Cars



OUR STEEL CARS

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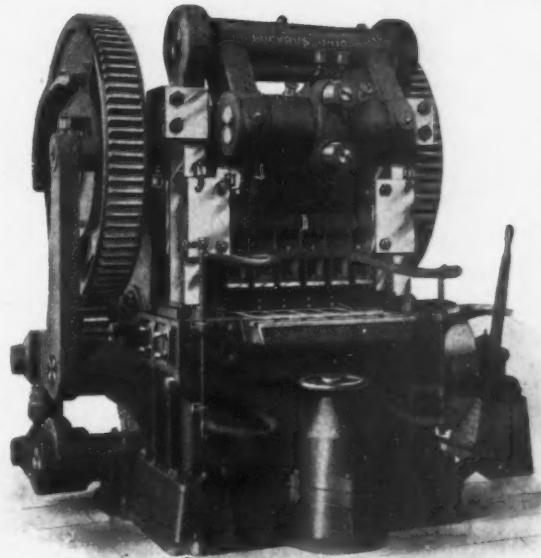
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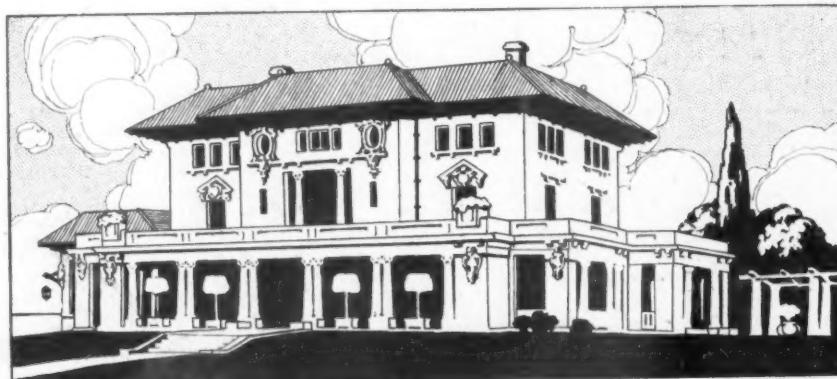
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